Railway Age

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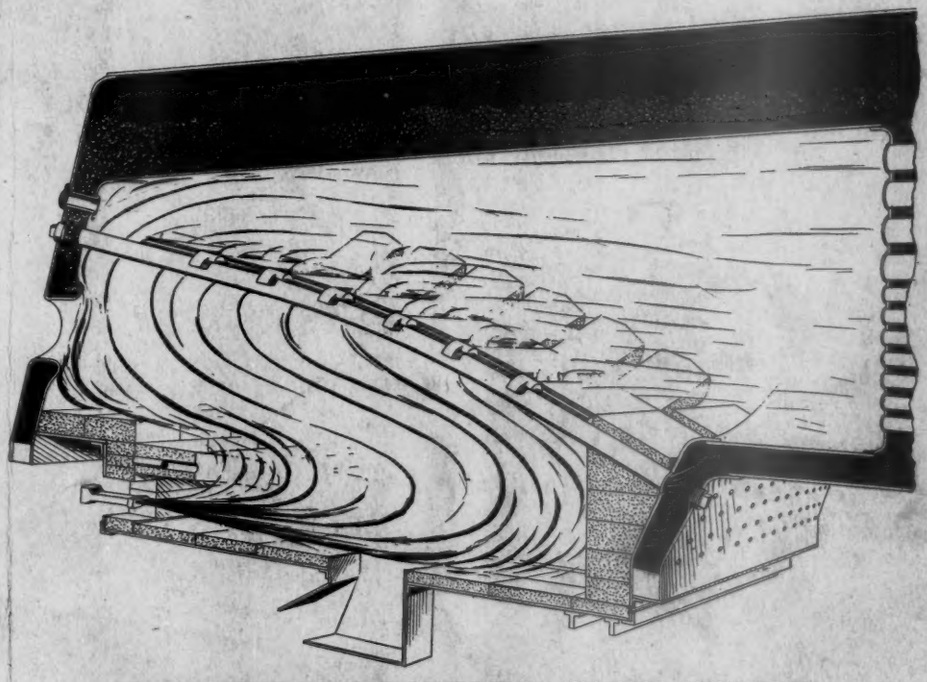

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EDITORIAL

Railway Age

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Effect of Delays in Passing Legislation

Probably criticism of the Senate and House Conference Committee on railroad legislation because its members have not speedily agreed on a report to their respective houses would be energy wasted. The delays that are responsible for the present situation occurred before the conferees were appointed. It is not surprising that important differences have arisen between them; and since important differences have arisen, it will take time to effect an agreement. But there is one important fact which the members of the Conference Committee and other members of Congress should not overlook,—viz, that every day's unnecessary delay in passing the railroad legislation will effect adversely the amount of freight the railways will be able to haul for the people of the United States next fall and winter. Railroad facilities are inadequate to handling all the commerce now offering. Every day that passes they are becoming more inadequate. No substantial increase of them will or can be begun until the legislation under which the railways are to be returned to private operation shall have been passed. Soon the year will be so far advanced that no orders placed for equipment and no contracts placed for the enlargement of yards and terminals can be carried out in time to be of any advantage in the handling of traffic next fall or winter. That the railways will have extremely serious trouble in handling the country's commerce throughout the present year, and especially next fall and winter, is now a foregone conclusion unless for some reason there is a heavy decrease of traffic. The sooner Congress acts the less serious the conditions will be; and the longer it delays the worse they will be.

Making the Best Use of Equipment

Director-General Hines on January 20 issued a statement to the shippers of the country urging them to co-operate with the Railroad Administration until private operation is resumed in making the best practicable use of freight cars. Shippers should do this in their own selfish interests. As Mr. Hines pointed out, there has been only a very small increase in the number of freight cars in the country within recent years. The railway companies could not provide enough during the last years of private operation because of inadequate rates and earnings and war conditions. The Railroad Administration could not do so because of war conditions in 1918 and because Congress did not provide the necessary funds in 1919. Meantime, there has occurred an enormous increase of traffic, except during a few months last spring; and there is good reason for expecting this to continue. Mr. Hines points out that in the week ended January 3, the number of cars loaded was 162,228 greater than in the same week of last year and 216,269 greater than in the corresponding week two years ago. The business offering is so large that without the co-operation of the shippers, the Railroad Administration cannot handle it, nor, without the shippers' co-operation will the railway companies be able to handle it later. One of the principal reasons why it has been possible for the railways to move such a vastly increased traffic within recent years without any corresponding increase of facilities has been the co-operation they have received from shippers in the heavier loading of cars. Recently, however—doubtless because of the patriotic motives arising from the war have ceased to operate—the average tons loaded per car has been declining. This injures both railways and shippers by reducing the amount of traffic which can be and is moved; for even if equipment were used to the practical limit of its capacity there would hardly be enough to handle the traffic now offering. It will be months at least before any considerable additions can be made to existing railroad facilities. Meantime all the business that is moved at all must be moved with the existing facilities. The easiest and most effective means available of causing the maximum practicable business to be moved will be for the railways and the shippers, both before and after the roads are returned to private operation, to co-operate in securing and maintaining the maximum practicable loading of cars. If the demands on the railways continue as heavy as they are now, the lighter shippers load cars for many months to come, the more of their products they will have left on their hands because the railways cannot haul them.

Steel Corporation Stock Sold to Employees

In talking to railroad employees a few years ago, L. F. Loree, now president of the Delaware & Hudson, suggested that if they were not satisfied with the way the properties were managed, it would not take a great while for them to buy control of the company. This is not as fanciful as it sounds, and if the present rate of the purchase of stock in the United States Steel Corporation by employees continues, it will not be many years until the employees will hold a larger block of stock than any other single individual interest in the steel corporation. The corporation first offered common stock to its employees in 1910 and since that time has made an offer each year at prices varying with the market price of the stock. During this period, employees have subscribed to $51,300,000 in shares of stock or over 10 per cent of the $500,000,000 stock outstanding. For the first time, this year the stock is offered to employees at the full market price. As a matter of fact, the offering price on Wednesday, January 14, when the announcement was made, was 106, or about a point above the quotations for the day on the New York Stock Exchange. The employee, however, pays for the stock on the instalment plan and furthermore receives a bonus of $5 per share per year for five years in addition to the regular dividends on the stock. If he sells the stock in less than five years, his bonus ceases. Even this year, therefore, the offering price to employees is very much lower than the market price, provided the employee holds the stock for five years. Last year employees took $15,561,000 of common stock and since the amount of stock which any employee can subscribe for is proportionate to the wage received, and the average wages per employee in 1919 are estimated at $1,900 as against $1,685 in 1918, considerably more than $15,000,000 in stock will probably be subscribed for this year. No offering of railroad stock

has ever been made to employees covering a period of years on as an attractive basis as that of the United States Steel Corporation offering, but in the success of this steel corporation experiment, might there not be food for thought for Glenn E. Plumb? If railroad employees want representation in the management and direction of the affairs of their company, why shouldn't they honestly and openly buy it instead of asking the tax payers to put up money. Something for nothing was the substance of the Plumb plan, but employee participation in ownership need not rest on any such uneconomic and unjustifiable scheme as the steel corporation's experience has proved.

Commissioner Woolley Denies Prejudging Railway Rate Case

COMMISSIONER ROBERT W. WOOLLEY of the Interstate Commerce Commission, has written us a letter, which we publish on another page, commenting upon certain editorials which were published in our issue of January 23. These editorials criticised a statement by Mr. Woolley published recently in the New York Herald, in which the Commissioner opposed the return of the railways to private operation upon the ground that it would result in a demand for large advances in freight rates, and that these advances in rates would result in a huge increase in the cost of living.

Mr. Woolley denies that he has "prejudged" the railways' case, and states that "once the railroads are back in the hands of their owners, their needs brought to the judicial attention of the Commission will be quite another matter."

In view of Mr. Woolley's statement, we cheerfully withdraw our assertion that he has "prejudged" the railways' case.

We also agree entirely with the position he takes that "an Interstate Commerce Commissioner is well within his rights in discussing proposed legislation." We believe, however, that an Interstate Commissioner in discussing railway questions, should be especially careful, because of his peculiar relationship to the railroad business, to base his discussion upon facts, and, for reasons we gave in the editorials to which Mr. Woolley refers, we believe that, in predicating his argument regarding rate advances largely on the proposition that an advance in rates causes a five times greater increase in the cost of living, he was very far from basing it on facts.

In those editorials we gave a large amount of statistical data tending to show that there never has been any such relationship between rates and the cost of living as that on which he so largely based his argument. In his letter to us, Mr. Woolley refers to "certain figures quoted by you and compiled by the Bureau of Railway Economics, an organization financed by the funds of railroad corporations," which he says were "misleading." We fear that Commissioner Woolley did not do us the honor to read our editorials very carefully before writing us regarding them, for we did not quote in them a single figure that had been compiled by the Bureau of Railway Economics, although that Bureau has our confidence as a reliable source of information. All the figures we quoted, as we clearly indicated in our editorials, were compiled by the Railroad Administration and by the Bureau of Statistics of the Department of Labor, both branches of the United States Government. The Commissioner does not point out wherein they were misleading. We would gladly give him space in our columns to do so. If any of them were "misleading." however, the government of the United States and not the railway corporations must be held responsible.

Railway Stockholders Losses

THE STOCKS of a dozen or twenty of the largest American railroads were considered by conservative bankers in the decade 1895 to 1905 as a sound investment for at least a part of the funds of individuals dependent on their income from investments for their living. Outstanding among this list were the Pennsylvania and the Atchison, Topeka & Santa Fe, with the Chicago, Milwaukee & St. Paul, the Baltimore & Ohio, the Northern Pacific and the Chesapeake & Ohio as close followers. Since 1901 the Pennsylvania stock with a par value of 50 has sold at 85, and the Atchison, Topeka & Santa Fe with a par value of 100 has sold at over 125. A few days after the announcement of the roads being taken over by the government and a fixed rental being guaranteed the corporations, Pennsylvania sold at 47 and Atchison sold at 87. At the end of last week Pennsylvania sold at 42 and Atchison at 84. About half of the total number of stockholders in the Pennsylvania are women. It may be assumed that almost all of these stockholders are dependent on their income from investments for their living, and it is probably safe to say that more than three-quarters of the stockholders of both Pennsylvania and Atchison are dependent on their income from investments. Neither of these stocks yielded a high enough rate of return in the period 1895 to 1905 to be attractive investments for a business man, and neither was in any sense of the word speculative. The financial structure of both corporations is sound and conservative. Bonds are not the predominant part of the capitalization as they are on so many other American railroads, and each year large additions have been made to the property through the expenditure of money which could have been paid out in dividends.

Fifteen years ago St. Paul was regarded as a gilt-edge stock, Baltimore & Ohio was in almost the same class, and Northern Pacific ranked about equally high. Since 1900 St. Paul has sold at just under 200, and is now selling at about 36; Baltimore & Ohio sold at over 125 and is now selling around 31; Northern Pacific sold above 200, excluding the Northern Pacific corner in 1901, and is now selling around 78. The Chesapeake & Ohio, the Lehigh Valley and the New York Central are investment stocks, as is shown by the fact that Chesapeake & Ohio has since 1900 sold at 92. Lehigh Valley with a par of 50 sold at over 121, and New York Central with a par of 100 sold at over 174. The Chesapeake & Ohio is now around 55, Lehigh Valley 43 and New York Central 68. It will have to be both a simple and a thoroughly sound economic basis on which Congress re-establishes railroad credit if the woman stockholder, who has seen a reduction of $40 per share in the price of her Pennsylvania stock or of over $40 per share on the Atchison stock, is to regain her faith in railways as an investment.

The Chief of Engineers, U. S. A. and the Railways

ENGINEERS IN RAILWAY SERVICE have been assigned to two general classes, the first embracing those who are primarily engineers and the second those who are essentially railroad men. Members of the first class have been accused of interesting themselves in engineers and engineering, to the exclusion of matters concerning the railroads not directly related to their profession. However, it is also possible to err in the opposite direction, and there are in fact some railway engineers who pay little or no attention to matters not directly related to the business of the corporations which employ them. As a consequence, they are very likely to overlook matters of direct bearing on their work which they had

failed to appreciate because of superficial consideration.

No better illustration of this can be cited than that arising through the vacancy in the position of chief of engineers, United States Army, for which Colonel Lansing H. Beach was recently nominated. Superficially this would seem to be a matter of very little concern to railway engineers, except as they may be interested in the profession of engineering as a whole. However, a little reflection will show that the chief of engineers, U. S. A., exerts a most profound influence on certain matters of real importance to the railroads. Through the authority of the United States War Department over navigable waters, the decision of the chief of engineers must be obtained to plans for bridges, docks and other engineering works where the interests of the railroads are thrown in contact with those of the waterways, so that he is in a position to require an expenditure of many thousand dollars in excess of the amount which the railway officers had deemed adequate at the inception of the undertaking. In the establishment of dock lines, the determination of bridge span lengths for river channels and regulations governing the design, maintenance and operation of movable bridges, the decision of the chief of engineers is one from which there is practically no appeal. It is, therefore, of great importance to the roads that he be a man of broad vision whose interest in waterways will be tempered by an appreciation of the value and necessity of railway transportation.

Previous to the nomination of Colonel Beach no little interest was taken, particularly among railway engineers who had been in military service, in the suggestion that Colonel William C. Langfitt be appointed to this position, because of the reputation he earned in overseas service as ranking officer of the Thirteenth Engineers (Railway), as brigadier general in command of several of these units, and later as chief of engineers, A. E. F.

Fifteen Years Development of Pullman Car Traffic

SINCE THE PUBLICATION of the article in the January 2 issue of the *Railway Age* dealing with the needs of the railroads for additional passenger equipment, additional data has become available which throws some light on the relative development of traffic carried in railroad and Pullman passenger cars and of the increase in the number of Pullman cars which has been made to keep pace with the growth of sleeping and passenger car traffic. In the absence of this information the discussion in the article referred to was confined to equipment of railroad ownership only.

During the ten years ending on July 31, 1915, the number of passengers carried in Pullman equipment increased from 14,969,219 to 21,489,301, or 44 per cent. During the same period the number of cars of all classes owned by the Pullman Company increased from 4,138 to 7,303, or 76½ per cent, but the performance of these cars as measured by car miles showed a proportionately smaller increase of 57 per cent. The number of car miles during the year ending July 31, 1905, was 444,986,296, while for 1915 it was 700,480,779.

At the close of the fiscal year ending July 31, 1919, there were 7,622 Pullman cars of all classes which during the year had carried a total of 33,103,307 passengers and had made 734,031,856 miles. An increase in the number of passengers carried during the four years since July 31, 1915, of 54 per cent has been handled with an increase in the number of cars of 4.4 per cent and in the number of car miles run during the year of slightly less than 5 per cent.

It is unfortunate that there is no record of the number of passenger miles made by travelers in Pullman cars. To determine what the actual traffic increase has been, involves a knowledge of the average miles per passenger trip as well as a knowledge of a number of passengers carried. The best data available on this point are the average receipts per passenger as reported by the Pullman Company. During the seven years from 1911 to 1917, inclusive, the average receipts per berth passenger were $2.47, with a minimum yearly average of $2.43 and a maximum of $2.53. The average receipts per seat passenger were 62 cents for the entire period with a minimum yearly average of 60 cents and a maximum of 63 cents. An estimate of the actual mileage per passenger on the basis of these figures would be complicated by the fact that the average receipts per berth passenger are a weighted average of the rates for uppers, lowers, staterooms and compartments. The uniformity of the proportion of passengers for each of the two classes of Pullman cars and of the average receipts per passenger during the period mentioned, seems to justify the conclusion that there was little change in the average miles traveled per passenger during the normal years preceding the war, and that the number of passengers carried may be considered approximately proportional to the number of passenger miles in each year.

It is evident that during the ten years prior to July 31, 1915, there was an increase in the number of Pullman cars greater than the increase in traffic seemed to demand. This is explained by the fact that during this period the construction of steel sleeping cars was developed to a practical point and coincident with the large increase in the number of steel passenger cars of railroad ownership a large number of steel Pullmans were built. These replaced the older wood equipment on many roads, particularly the large eastern roads, but the wood equipment was not actually retired from service. The number of cars in service in 1915, therefore, indicates an actual surplus of available equipment part of which, however, could not be considered available for universal service. This is indicated by the fact that while the number of Pullman passengers per car per year was 3,620 in 1905, it had dropped to 2,940 in 1915. Likewise, the miles per car per year had decreased from 107,600 in 1905 to 96,000 in 1915.

Developments during the last four years, however, have materially changed this situation. With an increase in the number of passengers carried in Pullman cars of 54 per cent, there has been an increase in the number of cars of but little more than 4 per cent. It is true that this has been accompanied by almost no increase in the number of miles per car per year, each car making but 96,400 miles during the year ending July 31, 1919, as compared with 96,000 during the fiscal year 1915. There has, however, been an increase in the number of passengers per car per year from 2,940 to 4,340. This represents a 17 per cent increase in the number of passengers per car per year as compared with 1905, and such data as is available indicates that the ratio for none of the years prior to 1915 varied much from that of 1905. That this increase in service was effected without a material increase in the miles per car clearly reflects the results of the Railroad Administration's policy of filling sleeping cars, uppers and lowers alike.

There are two reasons which make difficult any attempt to arrive at a close estimate of the additional amount of sleeping and parlor car equipment required to meet the needs of the present and immediate future on the basis of past developments: first, the abnormal increase in the number of cars built during the decade prior to 1915, and second, the possibility of much greater utilization of the equipment than was ever developed during the pre-war years. Much of the wood equipment which has long been in use has rendered invaluable service during the war in the movement of troops. The gradual extension of the use of steel equipment, how-

ever, probably will considerably exceed the actual need for new cars and it is inevitable that the surplus wood equipment must be of rapidly decreasing usefulness under normal conditions. It is also probable that with the return of the railroads to private operation, the full effect of the lesson in efficient utilization of sleeping car equipment will not be retained by the public and there will be a demand for some choice of accommodations, which has been denied the traveler during the past two years. An increase in the number of cars sufficient to reduce the number of Pullman passengers per car to 4,000 on the basis of the business handled in 1919 alone would require about 700 additional cars, without considering the question of retirements, while to retain this ratio with an increase in traffic during the next few years proportional to the average increase which took place during the decade prior to 1915 would require almost 1,000 more.

This cannot be considered a close estimate, but it certainly may be considered as indicative of the fact that a large number of Pullman sleeping and parlor cars will be needed during the next few years to take care of the demand of the traveling public for a return of some measure of the choice of accommodations enjoyed before the war and to meet the inevitable growth in the passenger traffic of the railroads.

The Onawa Collision

THE TABLE OF TRAIN ACCIDENTS to be printed for the month of December will include two accidents in which pasenger cars were burned and pasengers injured by fire, some of them fatally; an unusual record, recalling numerous distressing events of 30 years ago, when every passenger car carried a stove.* The first of these two accidents (in which three passengers were killed) occurred near Muscatine, Iowa, on December 4. A gasoline passenger car was derailed; and the fire originated in the gasoline, a cause which did not figure in the passenger train accidents of the last century. The second accident, a butting collision near Onawa, Maine, occurred on December 20, killing 24 persons, altogether. It was reported in the *Railway Age* of December 26, page 1256. This collision was due to a very old cause—forgetfulness or misreading of orders on the part of the men in charge of a freight train, who ought to have waited on a side-track for the second section of an opposing passenger train. This collision occurred in what is often called a remote corner of the country; but it was on a road, the Canadian Pacific, which has maintained a record for the safe carriage of passengers that has been quite remarkable; thus mocking the calculations of those who put too much emphasis on averages and good omens, and on safety records which depend on well-known American methods of train operation long since acknowledged to be defective. The way in which fatal blunders sometimes combine under circumstances like those at Onawa is very familiar; it was vividly illustrated no longer ago than last September at the Interstate Commerce Commission's investigation of a collision at Brooklyn, Ohio, which was noticed in the *Railway Age* of November 7, page 904.

Collisions on single track are not usually charged against faults in or abuse of the space interval system; and yet in a case like this the same principle is involved as in the space interval, in that there is no question concerning clocks or watches. We see here—as well as in the September collision referred to, and innumerable other instances—the futility of depending for safety, for any appreciable length of time, on ordinary men's unaided memories. At Onawa, at Brooklyn and at Nashville (July, 1918), a signal fixed on a roadside post, *regularly employed, for all trains,* would have accomplished what a paper in the enginemen's and conductors' pockets did not accomplish. In short, as has been said a hundred times, the block system, complete, absolute and for 24 hours every day, is the only workable system of train operation under which the superintendent can have reasonable peace of mind.

The Canadian Pacific reports this line through the State of Maine as operated under the manual block system, as will be seen from the Interstate Commerce Commission's annual statement, but the reports of the cause of this collision indicate that the absolute space interval is not maintained in all cases. In thus relaxing or omitting a part of the safeguards, the Canadian Pacific is not alone. Numerous other roads have the same practice. Moreover, this statement by itself is not sufficiently comprehensive to go to the root of the matter as viewed from the standpoint of the traveling public. Chief W. P. Borland, of the Bureau of Safety, in his annual report to the Interstate Commerce Commission on December 1, last, had occasion to say:

> "On some roads employing the manual block-signal system, dangerous practices are followed and rules violated to such an extent as to render the block-signal system entirely useless in preventing the very accidents which it was intended to eliminate. Such conditions exist with the full knowledge of responsible operating railroad officers, who by their failure to correct these practices and to enforce strict obedience to the rules actively contribute toward breaking down the morale of the service and the system of discipline which they should exercise every endeavor to maintain."

The situation is that we have in general use on single track lines four methods of working the manual block system: (1) the absolute block system for all trains; (2) the same, with permissive blocking whenever that is deemed necessary for the purpose of saving time; (3) the absolute block system for the protection of the rear of passenger trains only, which means, usually, its entire suspension for a part of the movements every day; (4) either of these systems with irregular variations or informal disobedience of rules as referred to by Mr. Borland. He has spoken of this in previous public statements, so we have no reason to doubt the existence of a real basis for his sweeping general assertion. He might have made a statement still more sweeping; that while on some roads there is general indulgence in the loose practices which he mentions, and which surely break down the morale, there are other roads where there is very weak adherence to the block system, without disturbance of morale; the rules recognize the every-day suspension of the space-interval principle, and the offiecrs who make the rules profess to believe that this is necessary; that they cannot afford the full protection of the complete system.

The only one of the four above-mentioned plans which any one recommends for general use is the first one, with, perhaps, an arrangement allowing the use of the second one under constant and detailed supervision by a high, responsible officer—not an ordinary train despatcher. (Substituting the time interval for the block system is not the same as permissive blocking.) No one publicly recommends anything but the best. Practice which is not the best—in fact is not safe—may or may not be public; but, in the words of Mr. Borland, it is carried out "with the full knowledge of responsible operating officers." The only rational conclusion, therefore, to be drawn from this official governmental declaration, is that the Interstate Commerce Commission ought to go on and expose such bad practices in sufficient detail and with sufficient persistence to secure their correction. (And such exposure would be educational on some roads not definitely to be classed as negligent.) Otherwise this grave accusation may have to be classed, along with some other deliverances of the commission, as nothing more than a glittering generality—a futile waste of paper. The Onawa collision, by itself, is likely to be forgotten; but its lesson, as related to other lessons which have been promulgated from Washington, is too serious to be lost.

*In the rear collision at Ivanhoe, Ind., on June 22, 1918, where 79 persons were killed, there was fire in some of the cars; but the next most recent case of magnitude that we find in the records was the butting collision at Tipton Ford, Mo., on August 5, 1914, when 43 persons were killed. A gasoline car figured in this collision, and the accident was spoken of as the first great disaster from a gasoline car. The present record indicates that it may not be the last.

Why a New Rule of Rate Regulation is Necessary

THE REALLY VITAL QUESTION under consideration by Congress in respect to hte proposed railroad legislation is whether a new rule for the regulation of rates shall be established by law, and if so, what its provisions shall be. As this paper repeatedly has pointed out, unless the new legislation does establish a new rule for rate making, it will be practically valueless no matter what it may provide regarding other matters.

The rule of rate making provided by the Interstate Commerce act, as it now stands, is, in substance, that all rates must be just and reasonable, and that if the Interstate Commerce Commission shall find any rate unreasonable or unjustly discriminatory it shall fix the reasonable rate thereafter to be charged. Probably, if this rule had been broadly interpreted throughout the time it has been in existence it would have proved sufficient. But it has been interpreted and applied in such a way that if Congress should leave it unchanged the hope of investors and railway executives that the railways will be given opportunity to earn and pay a sufficient return upon existing and future investment in them would be finally destroyed.

The interpretation which usually in theory and almost invariably in practice has been put upon the present rule has been that it has meant that entire schedules of rates should be fixed barely high enough to avoid violation of the constitutional rule against confiscation of property. The regulating commissions have not by any means been solely responsible for this. Congress and various state legislatures have passed laws providing for the valuation of railroad properties and have, either specifically or in effect, told the commissions that rates should be based upon the valuations. But the whole theory of basing rates upon valuation was evolved by the courts to protect the property of railway and public utilities companies from absolute confiscation. Therefore, when Congress and the legislatures have passed laws providing for valuations without in any way indicating what return should be allowed to be earned upon the valuations, their action has not unreasonably been construed as giving a mandate to the regulating commissions to make rates no higher than was necessary to avoid confiscation.

Now, while unquestionably it is the duty of the courts to set aside rates which are confiscatory, it does not by any means follow that legislatures and administrative bodies should follow the policy of making rates only barely high enough to avoid confiscation. The courts, in upholding or setting aside rates, are governed by constitutional principles, while lawmakers and administrative bodies, so long as they keep within the constitution, should be governed entirely by considerations of public policy and public expediency. The public welfare demands, not that rates shall be made as low as they can be without confiscation, but that they shall be made no higher than is necessary, but at least as high as is necessary, to enable the railways as a whole to give good and adequate service. Now, rates may be made high enough to avoid confiscation, and yet be made so low as to render it impossible for the railways to raise sufficient capital to provide good and adequate service. This is exactly what has been done in the past; and it is the principal reason why the expansion of the railways was rapidly declining before the great war, and why, when this country entered the war, the railways could not handle all the traffic that the industries of the country could give them.

The statistics regarding the amount of new investment made in the railways year by year, and the extent of the increase in their facilities before the great war began, are available to everybody. They demonstrate that from 1910 to 1917 there was a rapid decline in new investment and in the amount of facilities provided. It has, however, been denied that this decline in railroad investment and expansion was due to the way in which rates were regulated. For example, it has been pointed out by certain members of the Interstate Commerce Commission that the operating income earned by the railway companies in the three years ending with 1917 was larger than in any three preceding years in their history. Commissioner Woolley, in a recent statement, referred to the three years 1915, 1916 and 1917 as "one normal year and two miracle years." But Mr. Woolley and others who discuss the matter in this way persistently ignore the fact that while the amount of operating income earned in these three years was larger than in any preceding three years, the amount of investment represented by railroad properties also was larger than ever before, and that in consequence the percentage of operating income earned upon the investment was by no means the largest ever earned.

The book cost of road and equipment has been accepted for years by the Interstate Commerce Commission as the only available basis for making intelligent comparisons between the net returns earned by the railways from year to year. The statistics given by the Commission in its annual reports show that from the time it made its decision in the first important rate advance case, that of 1910, until the year 1916, there was a steady and rapid decline in the percentage of operating income earned on book cost of road and equipment. In 1910 this per cent was 5.73; in 1911, 4.87; in 1912, 4.62; in 1913, when the traffic was the largest it had ever been up to that time, 5.12; in 1914, 4.19; and in 1915, 4.09. The average during the five years 1911-1915, inclusive, was only 4.56 as compared with 5.41 in the preceding five years. Mr. Woolley refers to 1915 as "a normal year." The percentage of return earned in that year was the lowest since 1899. In what sense, then, was it a "normal" year?

In 1916 there was the largest increase in traffic and the largest volume of traffic ever handled up to that time. In 1917 there was a still further increase in traffic. These are the years which Mr. Woolley calls "two miracle years." The statistics of the Interstate Commerce Commission show that the percentage of return earned in 1916 was 5.8, and in 1917, 5.45. The percentage of return earned in 1916 was the largest ever reported, but that earned in 1917 was less than in 1910, 1907 or 1906, and was just about equal to the average earned in the five years 1906 to 1910 inclusive. The years 1916 and 1917 were good years, but to refer to them as "miracle" years is a gross exaggeration.

Besides, the railways cannot raise large amounts of capital on the basis of having two or three good years out of each ten. It is the average amount which they earn over periods of years that determine their prosperity and their credit. Now, even including the so-called "miracle" years, the average return earned in the seven years 1911 to 1917 inclusive that is, in the seven years following the time when proceedings in the first rate advance case were begun—was less than 4.9 per cent. This average for seven years, which, in point of volume of traffic handled included both good and bad years, is the best measure of the return permitted to be earned by the Interstate Commerce Commission and other regulating bodies. It was not enough or nearly enough. This is demonstrated by the fact that the annual investment made in railways declined from over $800,000,000 in 1911 to $264,000,000 in 1915, and $281,000,000 in 1916.

It is unjust, however, as we have already intimated, to place the entire responsibility for the policy of federal regulation followed upon the Interstate Commerce Commission. Every time an important case involving advances in rates has been before the Commission it has been the subject of discussion in Congress. The railways have been denounced in these discussions, and threats have been made as to what would be done to the Interstate Commerce Commision if it granted the advances. In at least one instance a bill was introduced by a member who was opposed to advances in

rates providing for the abolition of the Interstate Commerce Commission. The real or supposed attitude of Congress has had harmful effects upon railroad regulation.

Congress created the Interstate Commerce Commission, which is an administrative body performing only functions delegated to it by Congress. It passed the laws under which the Commission has acted. It has known the interpretation that has been put upon these laws, and the way they have been administered. It has acquiesced in their interpretation and administration. It passed the law under which the Commission is making a valuation of railroads. It is entirely within the power and province of Congress to say whether rates shall be regulated as they have been in the past, or in a different way. If it does not lay down a new rule the conclusion probably will be drawn, and not without justification, that it desires rates to be regulated in future as in the past. If they are regulated in future as in the past there can be no doubt as to what the results will be. The service rendered by the railways will necessarily become more and more unsatisfactory and inadequate; the commerce of the country will be strangled and responsibility will rest mainly upon Congress.

The purpose for which a new rule of rate making should be adopted is plain. This purpose should be to stop the regulation of rates upon the theory that they should be made as low as they can be without confiscation, and to cause the commencement of the regulation of rates upon the principle that they should be made sufficient to enable the railways to provide the service which the welfare of the country requires that they shall provide. The adoption of such a rule should and would result in a large advance in rates. But without such an advance in rates the railways will not be able under private management to render the service that the welfare of the country demands; and the nation will be driven into government ownership, with the result that the cost of transportation which the public will have to bear in the form of rates or taxes or both will be far heavier than the burden that would be put upon it by making rates sufficient to enable private management to be successful.

Failure to Expand Railways Will Cause National Disaster

THE PEOPLE AND CONGRESS of the United States are living in a fool's paradise so far as the railroad question is concerned, and unless they awaken to a realization of what the railroad situation actually is, and to its relationship to the rest of the business and industry of the country, the result, in our opinion, is bound to be, within a comparatively few years, an industrial and financial convulsion.

The panic of 1873 was one of the most disastrous business catastrophes that we have ever had. There is good reason for fearing we shall have another due to similar causes, unless the public and Congress act soon and wisely regarding the railroad problem. The whole question is before Congress now. If Congress adopts legislation which will give the railway companies an opportunity adequately to expand their facilities the crisis probably will be avoided. If Congress and the regulating authorities do not give the railways opportunity adequately to expand their facilities, sooner or later, the crisis will come.

Reference has been made to the panic of 1873. The historians tell us it was due chiefly to the excessive investment which had been made for some years before in the construction of railroads. So many railroads were built into undeveloped territory that it was impossible to give them the traffic and earnings needed to enable them to earn an adequate return upon the investment. A large part of them became bankrupt and ruined those who had invested in them. The ruin of these investors pulled down banking houses that had advanced them credit. Thus the finances and industry of the entire country became involved.

The public invested too much of its capital in railroads then and too little in other industries. Within recent years it has been investing too much of its capital in other industries and not enough in railroads. The results are written large in the statistics regarding the increases which have occurred in railroad traffic and in railroad facilities. Within the last four years the freight traffic actually handled by the railways has increased about 45 per cent. Meantime, the number of freight cars in service has increased only about 2 per cent. These figures indicate the proportionate increases that have occurred in traffic and in railroad facilities of all kinds. This enormous increase in freight has been the result of the increase in production of other industries—manufactories, mines, farms, lumber mills, and so on—and this increase in the production of other industries has been mainly due to the increase in the capital invested in them. On the other hand, the very small increase in railroad facilities has been due to the relatively small amount of investment which has been made in railroads recently. The result has been that the railroads for four years have been unable, except during a few months last spring, to handle all freight that has been offered to them. The coal operators have been complaining that the shortage of cars has been the chief factor in limiting the production of their mines. In the northwest the railways cannot haul all the lumber which the mills can produce. The Governor of Kansas the other day wired the director general of railroads that 45 per cent of all the wheat grown in that state last year was still in the hands of the farmers.

It should be obvious that in the long run it will do no good to invest more and more capital in manufactories, coal mines, lumber mills and farms unless the factories, mines, mills and farms can send to market their increasing products. The thing required to make it practicable to move more products is to enlarge the capacity of the railroads. That can be done only by investing more capital in them. But the records of the New York Stock Exchange show that, in spite of the present shortage of railroad facilities, we are going right on investing vast amounts of additional capital in other industries while relatively only a small new investment is being made in the railroads.

The results which must come if we continue this process are plain. Those who are investing these billions of dollars of new capital in other industries will try to increase their production in order to earn a return upon their increased investment. The railroads will be unable to transport their additional products to market and it will be impossible to continue the increased production. But if those who have invested this new capital are unable to increase their production they will be unable, just as the railroads were in 1873, to earn and pay a return upon their new investment. When they become unable to earn and pay a return upon it they will become bankrupt, as the railroads did in 1873. When they become bankrupt they, like the railroads in 1873, will pull the financial structure of the country down with them.

The *Railway Age* has made the most careful estimate it has been able to on the basis of the data available, and has reached the conclusion that to enable the railways to make up the deficiency of facilities which now exists, and to provide for the normal growth of business, will require an investment of $6,000,000,000 within the next three years. That strikes many people as a very large estimate. It amounts to $2,000,000,000 a year for three years. But we are told that the automobile manufacturers of the United States have plans for building 2,000,000 cars this year. At an average price of $1,000 that many cars would cost $2,000,000,000 . If the country can spend $2,000,000,000 for automobiles in a single year, many of which are used chiefly for joy-riding, is it unreasonable to estimate that it

ought for three years to invest $2,000,000,000 a year in increasing the facilities of the railroads, the rendering of good and adequate service by which is indispensable to the country's industrial growth and prosperity? Of one thing we may be sure; if we spend $2,000,000,000 a year, or anything like that amount, for automobiles, and make correspondingly large investments in other industries, and do not make the investment in our railroads which is necessary adequately to increase their facilities and enable the country to increase its production, we shall be doing our best to make conditions favorable for a commercial and industrial convulsion which will shake the world.

Meantime, we venture to doubt whether this vast automobile building program could be carried out, even if all the labor and materials needed were available. The materials must be hauled to the factories by the railways, but it is very doubtful if the railways can do it. Besides, automobiles are not of the greatest value for either pleasure or business unless there are good roads on which to run them. The various governments of the country have appropriated about $633,000,000 for the construction of new highways during 1920, which is five times as much as ever was appropriated in any year before. That road-building program will not, and cannot, be carried out in 1920 because the railways have not enough of the kind of cars required to haul the road-building materials.

Similarily, many of our other projects for huge expansion of business will be speedily strangled unless the capacity of the railroads is increased. We have heard much talk of the need for increased production as a means of reducing the cost of living and increasing the prosperity of the people of the United States, and allaying the industrial unrest. But no matter what way you turn in the consideration of this question of increased production, you are brought up short by running into the fact that the railroads with their existing facilities have during most of the time for four years been handling all the commodities they can, and that therefore there cannot be any large increase of production in the United States until there has been a great expansion of railroad facilities. This expansion of railroad facilities would have to be made before there could be a large increase of production if the government were going to continue to operate the railroads. It will have to be made if the railway companies, to which the roads are to be returned on March 1, are to be able to handle a substantially enlarged amount of traffic.

Since the welfare of the entire country depends upon a great increase of production, and since it cannot be secured without a great increase of railroad facilities, we naturally come to the question of how this increase in railroad facilities can be secured. It can be secured in only one way, and that is by reducing the amount of capital we are investing in other industries and increasing the amount of it being invested in railroads. But people with capital will not invest it in railroads, any more than in any other kind of industry, unless they are convinced that they will get as large a return by buying railroad securities as by buying the securities of concerns of other kinds. The only way people with capital can be convinced that the railroads will be able to pay attractive interest and dividends will be by the adoption of legislation and the fixing of railroad rates which will give the railroads an opportunity to earn relatively as large returns as are earned in other industries.

Some people say that the railways should be allowed to earn only "a fair return upon their fair value." What the railroads must pay in interest and dividends to raise capital is determined not by anybody's theory as to what is "a fair return" for them, but by what return those who own the capital are willing to accept. The present situation in the railroad business is mainly due to the fact that for ten or fifteen years those who have regulated our railroads have so fixed the rates that the companies have not been able to pay those with capital to invest as much as those who had the capital have insisted upon receiving.

The railroads are to be returned to private operation on March 1. Congress is now engaged in framing the legislation which is to be passed before they are returned. The principal question before it is whether it will adopt into law a new rule requiring the Interstate Commerce Commission, or whatever body regulates the rates, to regulate them differently in the future from the way in which they have been regulated in the past. The main thing which the new rule should require, whatever the particular form given to it may be, is that the rates and not operating income of the companies shall be made large enough in the future to enable the railway companies to raise enough capital adequately to develop their facilities.

This is not primarily a railway question. It is primarily a public question. If the public is not to be overwhelmed by a great commercial and financial disaster the railway companies must be enabled to provide adequate facilities, and, from the public point of view, the crucial question is how much they must be allowed to earn and keep from their earnings in order to provide these facilities. Probably if the railways should be allowed to earn an average of 6 per cent, and only a reasonable part of the surplus earnings of individual companies over 6 per cent were taken from them, the companies would be able to raise sufficient capital. On the other hand, a provision such as that of the Cummins bill taking from the more prosperous roads two-thirds of all their surplus earnings over 6 per cent would largely destroy the incentive to efficient operation of these roads and to the large investment in their stocks which ought to be made.

The sentiment of the people of the country, and especially of the business men of the country, is overwhelmingly opposed to government ownership and operation of railroads. There are, however, many people who are opposed to government operation but who do not seem to realize what the present railroad situation actually is, and what must be done to enable the railways to give good and sufficient service under private management. Although under government operation the railways on the present rates have incurred a deficit this year of about $400,000,000 and have failed by at least $700,000,000 to earn a return equivalent to 6 per cent, there are many persons who seem to think that no advance in rates will be necessary to put the companies on their feet again and enable them to raise large amounts of new capital—or at least that only a comparatively small advance in rates will be necessary. Persons who believe thus have either failed to inform themselves as to the facts or are deceiving themselves. Since 1917 the operating expenses of the railways have increased $1,600,000,000 a year, while the advance in rates made under government operation is yielding about $1,000,000,000 a year. That is the situation in a nutshell so far as operating expenses and rates are concerned.

We are today at the crisis in the consideration of the railroad problem. It is either going to be dealt with in such a way as to enable private management to succeed and to raise and invest the capital needed adequately to develop railroad facilities, or it is going to be handled in a way that will prevent these things from being done. We have little doubt that if it is not settled right now, the commercial and industrial catastrophe which we have anticipated will come within a few years. The railroads will break down; but probably many thousands of people will attribute their break-down, not to the government's failure to deal intelligently with the railroad problem, but largely or wholly to shortcomings of private management. That probably would mean the adoption of permanent government ownership and operation of railroads.

The present railroad situation is due entirely to the policy of government regulation which long was followed, and to

developments since government control was adopted. In other words, the government is almost entirely responsible for it. For fifteen years warnings have been given that this would be the result of the government's policy, but they have not been heeded. By passing needed legislation and passing it promptly the present Congress can make possible the expansion of railroad facilities which the welfare of the country imperatively requires. If the present Congress does not do it, then it will be responsible for the industrial and financial disaster which will surely come. Can the Republican party, which controls the present Congress, assume responsibility for the results of its failure to pass needed legislation?

New Books

Proceedings of the International Railway General Foremen's Association. 162 pages, 6 in. by 9 in., illustrated, bound in leather. Published by the association, William Hall, secretary, Winona, Minn.

This book contains the proceedings of the International Railway General Foremen's Association convention, held September 2-5, 1919, in the Hotel Sherman, at Chicago, Ill. The addresses delivered before the convention by R. H. Aishton, regional director of the Northwestern region and L. A. North, president of the association, are given in full. The various papers read before the convention and the discussion of the subjects by the members are recorded. Among the papers were several touching on safety first. Other subjects considered were welding of locomotive cylinders, autogenous welding of locomotive parts and several papers on the design and maintenance of draft gear.

Applied Science for Metal-Workers. By W. H. Dooley, in charge of Navy Yard Continuation School for New York Board of Education. 467 pages, 5¼ in. by 7½ in., illustrated, bound in cloth. Published by the Ronald Press, New York.

This book is similar in character to Applied Science for Wood-Workers by the same author, and covers in the same way the general principles of science common to all industries. It presents in an easily understood form practical applications of the principles underlying the metal workers' trades. In addition to a presentation of the data necessary to equip the student for the intelligent study of industrial science it deals in a practical way with modern foundry practice, the making of wrought iron and steel, machine shop practice, sheet metals, structural steel and other subjects relating to the metal working trades. A series of questions and problems on each subject gives the student a thorough examination and illustrates in a lucid manner the purpose of the work performed as well as the methods used in performing it.

Proceedings of the American Railroad Association, Section III—Mechanical. 668 pages, 6 in. by 9 in., illustrated, bound in cloth. Published by the association, 75 Church street, New York.

This volume contains the proceedings of the American Railroad Association, Section III—Mechanical, and covers all of the matters formerly treated separately in the proceedings of the Master Car Builders' Association and the American Railway Master Mechanics' Association. Complete reports are given of the various addresses delivered at the convention by men prominent in railroad affairs, and also the reports of the numerous committees and the discussions thereon. Of particular interest are the papers relating to fuel economy, mechanical stokers, powdered fuel and welding in its various phases, as applied to both the car and locomotive fields.

Letters to the Editor

A Letter from Commissioner Woolley

INTERSTATE COMMERCE COMMISSION, WASHINGTON

TO THE EDITOR:

I have read with much interest your editorials in the *Railway Age* of January 16 and 23 on my statement published in the New York Herald of January 12.

Aside from the fact that certain figures quoted by you and compiled by the Bureau of Railway Economics, an organization financed with the funds of railroad corporations, are misleading, I challenge the charge that I am prejudging a case.

I think you will agree, upon second thought, that an Interstate Commerce Commissioner is well within his rights in discussing proposed legislation. Once the railroads are back in the hands of their owners, their needs brought to the judicial attention of the Commission will be quite another matter.

R. W. WOOLLEY.

Audible Block Signals

BUFFALO, N. Y.

TO THE EDITOR:

I notice in the government report on the rear collision at Port Chester, Conn., on July 31, printed in your issue of January 9, that the adoption of an automatic train stop is again recommended; but nothing is said about audible signals. What is the matter with the humble and inexpensive and time-honored torpedo? The standing train is censured for not throwing off fusees; but fusees never would have awakened those sleeping enginemen. Torpedoes, no doubt, would have aroused them.

The inspector discreetly refrained from recommending that trains be run ten minutes apart so that a trainman could go back with torpedoes; but why does he not recognize the opposite horn on the dilemma? The torpedo has done great service; no doubt it has many a time awakened a sleeping engineman. But we have shortened our time interval and now it is impossible to make use of the torpedo; and it is time to face the alternative. Some other audible apparatus must be introduced to take the place of it. What is the matter with the device which was used on the Burlington road some years ago by which a man on a caboose could fix a torpedo to the rail while moving along at considerable speed?

Or, if that thing is a failure, why not an audible signal connected with the block signal? In England, the signalman, can reinforce the visual signal with a torpedo, controlled from the tower; why do we not have our automatic signals made equal to the English human signal operator?

If all hands, are going to continue to work at cross purposes in the matter of automatic train control we shall never get anywhere. Another thing that I find in your issue of January 9 is that the Railway Executives have asked Congress to take no action in connection with the use of automatic train stops; General S. M. Felton says that they would make enginemen careless. As I understand it, this claim has long since been disproved. Ask the Chicago & Eastern Illinois.

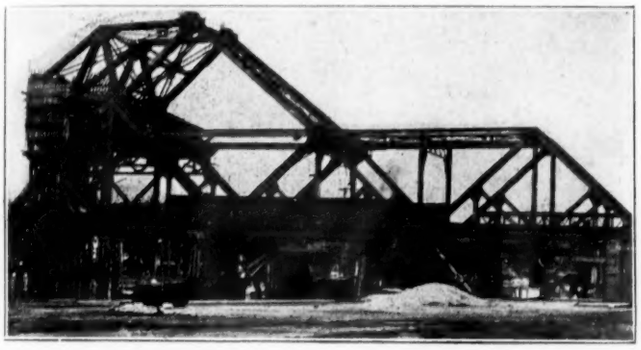
This being the situation—and the demand of the public that the railroads shall stop killing passengers by the carload being just as insistent as ever, if only it knew how to find expression—the thing to do is to look up the merits of the audible signal.

E. ADAMS.

New York Central Relocates Line in Tonawanda, N.Y.

New Location Eliminates Eleven Grade Crossings and One Bridge Over the Barge Canal

IN ORDER TO MEET the changed conditions incident to the New York State barge canal improvements in the cities of Tonawanda and North Tonawanda, N. Y., the New York Central is now engaged in an extensive line revision project in these cities. The work involves the construction of a new double track roadbed approximately two miles long



The Bascule Bridge at the Barge Canal Crossing. Temporary Girder and Trestle Structure in Foreground

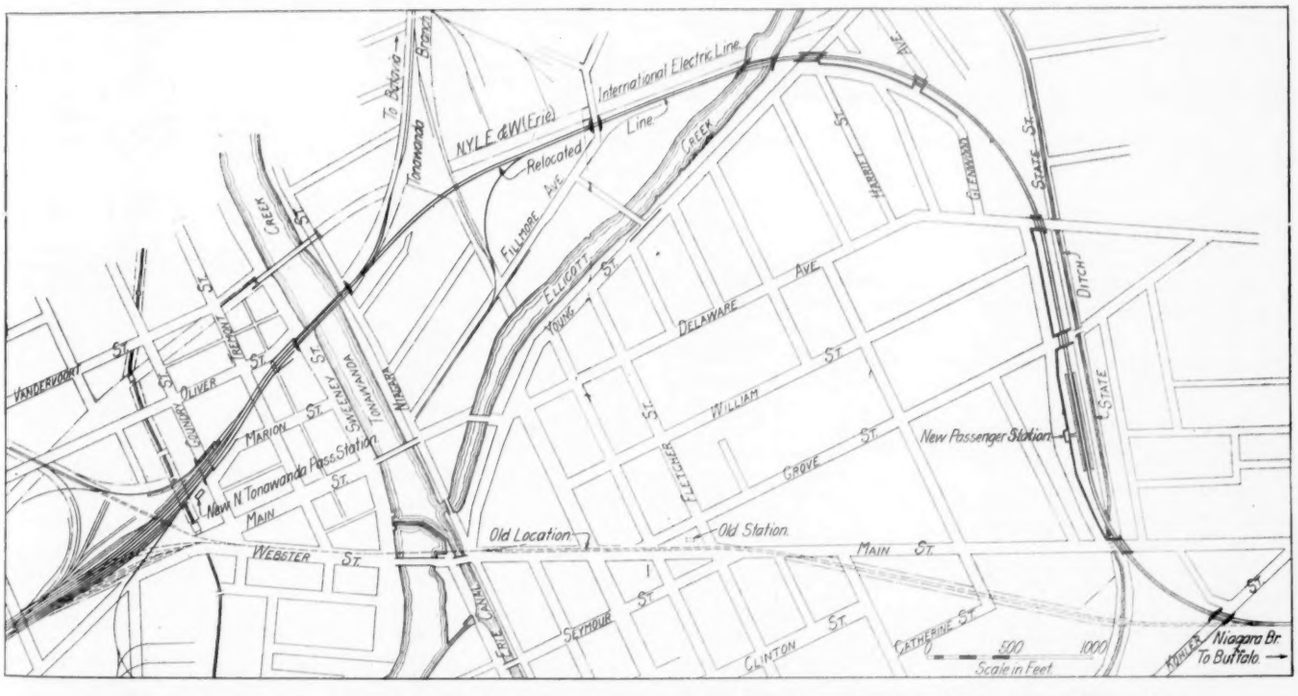
with 11 concrete and steel structures carrying the new line over the streets, a 200-ft. fixed truss bridge over Ellicott creek, a bascule lift span over Tonawanda creek, 3,500 ft. of new streets, 2,500 ft. of retaining walls, new passenger station layouts in both cities and improved freight yard facilities in North Tonawanda. Construction was begun in July, 1917, and it is estimated that the work will be completed this year.

The cities of Tonawanda and North Tonawanda are located on Lake Erie, approximately 10 miles north of Buffalo, N. Y. As may be seen on the map they are, in effect, one community, separated into two sections by Tonawanda creek, which marks the boundary between the two municipalities. Tonawanda is served by two lines of the New York Central, both of which extend across the creek into North Tonawanda. A third line of the road enters North Tonawanda and all three lines converge to a junction in the latter city.

Of these lines the Niagara branch, which extends from Buffalo through the Tonawandas to Niagara Falls, is the most important. This branch enters Tonawanda from the south on a double track roadbed, crosses seven streets at grade and runs in Main street to the bridge over Young street. It crosses the Erie canal and Tonawanda creek by means of a fixed, single-track bridge and continues in North Tonawanda, as a single track line, to the junction previously mentioned. In North Tonawanda the line involves a lengthwise occupancy of Webster street, the principal thoroughfare of the city and crosses two intersecting streets at grade.

The Tonawanda branch from Batavia enters Tonawanda from the east on a private right-of-way. Within the city proper this is a single track line which crosses Tonawanda creek by means of a single track fixed bridge and continues to North Tonawanda junction, the western terminus of the line, crossing two streets at grade.

The Lockport branch enters North Tonawanda from the north and terminates at North Tonawanda junction. Apart from the freight yard improvements at the junction this line is not directly affected by the present project. The only other steam road physically entering either city is the Niagara Falls branch of the Erie which enters Tonawanda from the south, crossing the Tonawanda branch of the New

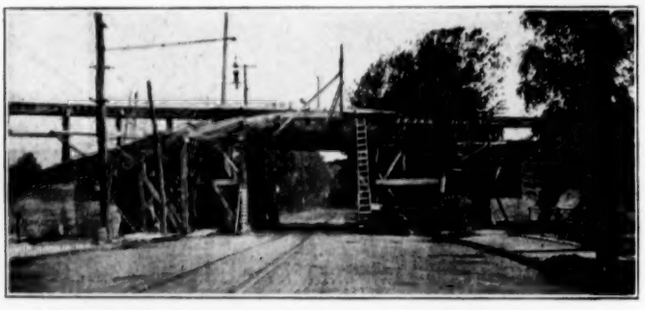


Map of Parts of Tonawanda and North Tonawanda, N. Y., Showing the New York Central Relocation

York Central at grade just south of Tonawanda creek and continuing across the creek by means of a fixed bridge into North Tonawanda and to Niagara Falls. The Lehigh Valley enters Tonawanda, crosses Tonawanda creek and passes through North Tonawanda on the rails of the New York Central.

In connection with the Barge Canal improvement in the two cities, Tonawanda creek has been canalized and developed into a harbor for docking lake-going vessels. This necessitated the rebuilding of the railroad bridges across the creek as the old structures provided insufficient underclearance to meet the requirements of canal operation.

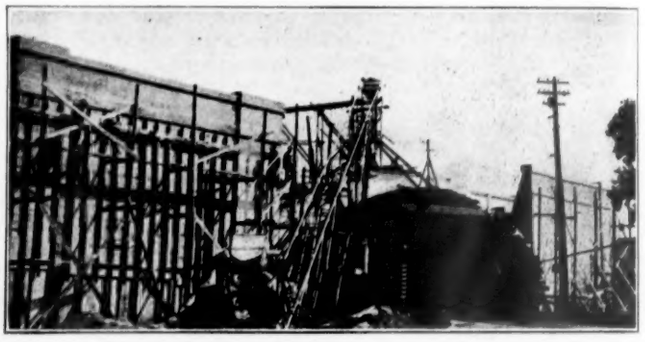
The present creek bridge on the Niagara branch is on a summit approached by grades exceeding 1 per cent, making it impractical from an operating standpoint to raise the existing structure. Replacing this bridge on the old site with a lift span was also undesirable as it committed the road for years to come to the old location at grade in and across the streets of both cities, involving speed restrictions



Timber Centering Was Used in All Arches

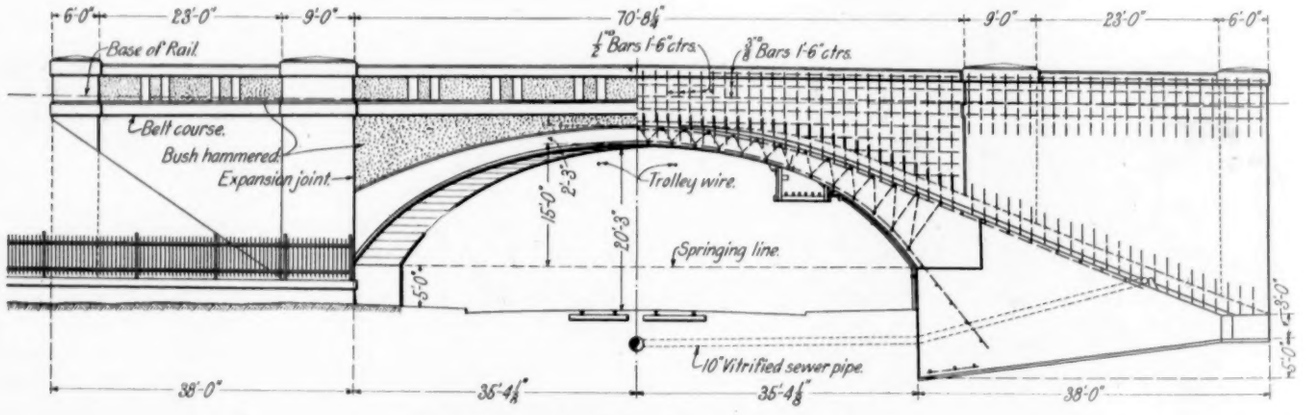
and great danger to street traffic. Also this line, under the old conditions, involved single track operation in Webster street, North Tonawanda, and over the creek bridge. This part of the line carries a very heavy traffic consisting of more than 100 regular train movements per day. Including switching, a movement is made on an average of every 11 min., so that if this line was to be made permanent it was essential that a second track be laid in Webster street. For these reasons it was decided to abandon the present location and three plans for relocation were considered.

Of the three proposed locations, a line which contemplated a relocation of the Niagara branch to the west of the present location, was abandoned as it necessitated two lift bridges over Tonawanda creek (one each in the relocated line and in the Tonawanda branch); a second line proposed a relocation of both branches, bringing them to a junction in Tonawanda before crossing the creek on a common bridge. This relocation involved a new line passing through the residential sections of both cities and was abandoned because of the prohibitive cost of the right-of-way. The third location, the plans for which were adopted, provided for the abandonment of the old location of the Niagara branch from a point south of Kohler street, near the southern limits of Tonawanda to the junction of the three lines in North Tonawanda, mentioned previously, and its replacement by a double track elevated line which skirts the edge of the resi-



The Concrete Plant with Incline and Distributing Chute at Main Street Arch

dential section of the city, departing from the old location at the south end by means of a 5 deg. curve to the right, for a distance of approximately 1,588 ft., thence on a tangent to Delaware avenue, then on a 4 deg. curve to the left across Ellicott creek, joining a tangent paralleling the Erie right-of-way and extending past the plants of the McKinnon Chain Company and the National Roofing Company and then by a 3 deg. curve to the left to a junction with the Tonawanda branch just south of Tonawanda creek. From this point to the northern limits of the work the new line follows closely the present location of the Tonawanda branch. While the new location involves an increase in the length of line and a 5 deg. maximum curve it permits the carrying of the tracks of both the Niagara and the Tonawanda branches over the creek on one bridge, while at the same time the 11 dangerous grade crossing and the lengthwise occupancies of Main and Webster streets are eliminated.



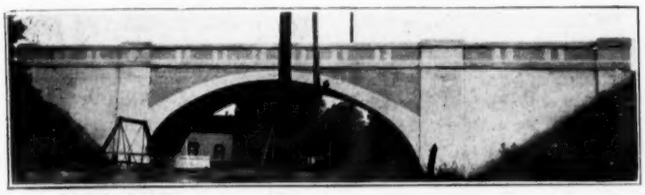
Elevation and Section of Typical Subway Arch

The territory traversed by the new location is flat and low. The depression of intersecting streets was, therefore, out of the question and the grade of the tracks was fixed at an elevation sufficient to provide a minimum underclearance of 13 ft. at structures carrying the line over the streets. At trolley crossings this clearance was increased to 14 ft.

More than 500,000 cu. yds. of filling material was re-

quired for the building of the double track elevated roadbed. The material used is chiefly clay secured from borrow pits, located to the west of the present location of the Niagara branch. It was moved from the pits by steam shovels, transported in narrow gage equipment and unloaded in the embankments from temporary trestles.

The completed structures consist of reinforced concrete arch spans over Main and Grove streets and Delaware and Glenwood avenues, a through girder bridge at Freemont street, a deck girder bridge with concrete floor and ballasted track at Kohler and Young streets, a fixed truss span 200 ft. long over Ellicott creek and the bridge over Tonawanda creek. Of these the last mentioned is the most important, being comprised, from south to north, of a through girder span

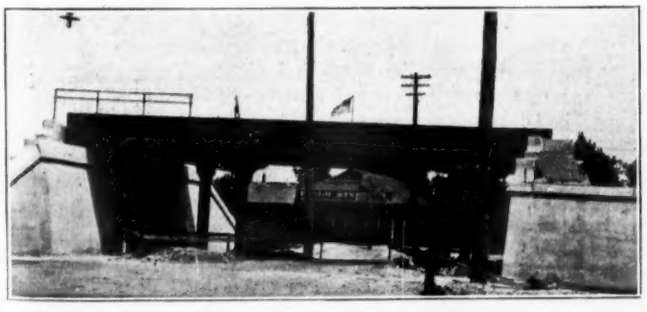


The Arch Structures Present Pleasing Architectural Features

over Niagara street, Tonawanda, a short deck girder span, a 100-ft. bascule lift span over the main channel, a fixed span supporting the counterweight, a second deck span and a through girder span over Sweeney street, North Tonawanda.

The lift span is a single leaf Strauss heeled trunnion structure and the fixed span is a simple A truss.

The new structure is located approximately on the site of the old bridge. It was, however, erected free from traffic as in meeting the requirements of canal operation it became necessary to make certain temporary changes at the bridge site. This consisted in the building of a detour line to the west of the old location whereby a temporary crossing of the creek was made by means of a wooden trestle in which the required 50-ft. clear channel for the barge canal was provided by sliding one of the half through girder spans from the old bridge on skids to temporary bridge seats, provided



Type of Through Girder Bridge

in the detour line, consisting of cribbing surrounded by steel sheet piling.

The arch bridges on the line are all similar in design and appearance, all being finished with solid copings relieved with vertical panels of plain finished concrete, the panelling being accentuated by the bush hammered finish of the surrounding concrete. The Delaware avenue arch is typical of the others. The tracks at this point are on a 4-deg. curve and a 0.05 per cent ascending grade westward. The avenue is 66 ft. wide and crosses under the tracks on a skew, the angle formed between a tangent to the center line between tracks at the intersection of the center line of the avenue, and the center line of the street being 69 deg. 30 sec. The structure is entirely clear of the street with its abutments located on the street lines.

In preparing the foundations for the abutments a total of 424 timber piles were driven. The maximum load per pile is 20 tons and the piles were driven in a vertical plane parallel to the face of the arch and inclined toward the center of the street, giving a batter of 1½ in. to the foot. To prevent sliding the foundations were inclined toward the center of the street, the elevation at the toe of the abutment being 5 ft. below the elevation at the heel. The structure was built in sections in the order indicated on the plan showing the construction joints. Between construction joints each section of the structure is monolithic, the concrete being poured continuously until a section was completed.

The arch ring was designed for a live load of 800 lb. per sq. ft. and an impact of 400 lb. per sq. ft. The timber centering was left in place until the fill had been placed behind and on top of the abutments.

To provide drainage the backs of the arch and the abutments were covered with 18 in. of cinder fill. A membrane waterproofing covered with a 2-in. protective coating of 1:2 cement mortar was provided for protecting the arch ring and the spandrel walls. The tops of the abutments and the backs

A Typical View of the Fill and Dumping Trestle

of the retaining walls were waterproofed with coal tar pitch at least 1/8-in. in thickness.

The steel bridges over the streets are also similar, each comprised of one roadway and two sidewalk spans of the usual type supported on gravity abutments and steel bents at the curb line. The Freemont street bridge floor is of the steel trough type, while a ballasted deck was used on the bridges at Kohler and Young streets.

The bridge over Ellicott creek consists of second hand steel trusses of 200 ft. spans released from the West Shore road at Fort Plain, N. Y. The floor and lateral systems in this structure are new.

While a wet clay subsoil was encountered throughout the job, necessitating the driving of piles under all structures, no particular difficulties were encountered in erecting the masonry supports. At the Tonawanda creek bridge floating equipment consisting of the pile driver, a clam shell and a derrick boat was utilized in preparing the foundations.

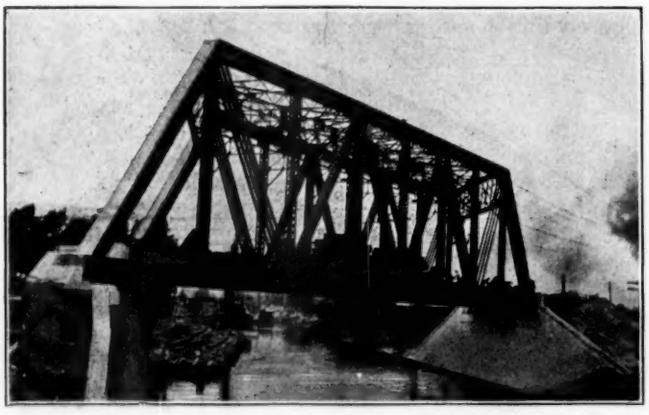
All bridge abutments are of the gravity type. The equipment used in placing the concrete in the forms consisted of distributing towers with ordinary batch mixers or Jaeger Machine Company mixers which were operated in conjunction with inclined tracks, over which concrete buggies were operated, the power for operating the mixers and the buggies being furnished by a gasoline engine. Niagara river washed gravel was used in all the concrete. This was brought in by barges and carted to the particular job.

Incident to the new work a rearrangement of the Mc-

Kinnon Chain Company plant was necessary, involving the relocation of Freemont street and its bridge over Ellicott creek. The work comprised approximately 250 ft. of new street, the construction of new concrete substructure for the bridge and the moving of the old bridge span. This latter was accomplished by the floating method without serious interruption to street traffic.

Present Status of the Work

With the exception of the new bridge over Tonawanda creek and a transformer house and a signal station for controlling the bridge and the train movements over the two



The Bridge Over Ellicott Creek

branches, which, as previously mentioned, come to a junction in Tonawanda, the work, up to the present time, has been confined principally to that part of the line lying within the limits of the city of Tonawanda. On this section all of the structures are completed and the double track embankment has been placed between Kohler street and Tonawanda creek. The passenger station and freight yard improvements have not yet been undertaken.

This project is being carried on under the direction of George W. Kittredge, chief engineer of the New York Central, and J. W. Pfau, engineer of construction. The New York State Dredging Corporation is the general contractor.

C. H. Markham Addresses Southern Hardwood Traffic Association

INCREASED RATES commensurate with the increased cost of operation of the railroads, more cars, more engines and more trackage, are a few of the things which railroads of the United States must have when the roads are returned to private owners, C. H. Markham, president of the Illinois Central, told 250 members of the Southern Hardwood Traffic Association at the afternoon session of its seventh annual meeting at Memphis, Tenn., on January 20.

"Railroad business is no different from your business," said Mr. Markham. "It must be conceded that in order to give the service you should have, there must be an increase in rates commensurate with the increase in service. I want all things left in the hands of private owners of the property. I don't want the government's hands on anything I have to operate. Understand, I am not objecting to government control, but I do not want government operation."

At this point he briefly discussed the competition between the rail and waterways, and explained that there really was no competition between these two, but that the one that could give the service and rates would always get the business.

"There is nothing the matter with the railroads today that money and time cannot cure," Mr. Markham continued "There is a great necessity now and in the future for increased facilities. What the railroads need is more cars, more engines, more tracks, double tracks, switching facilities and enlarged terminals. First, we ought to have 700,000 cars built in the next four years, but I don't believe they can be furnished. I don't see anything for the next three years but continued difficulties with the car shortage. The railroads can only handle a per cent of the business.

"Your figures show that 200,000 cars are needed today. I don't believe that you can get 100,000 in the next 18 months. The material is not available and you can't get labor. How can you possibly increase the number of cars and locomotives to take adequate care of the increase in business? It will not solve the problem to turn it over to the government."

In this connection he pointed out that in the five years before government control of the railroads 475,000 cars were built, and in the previous five years only 692,000 cars were built. He placed the depreciation per year at 100,000, which has not even been provided for under government control.

S. M. Nickey, Memphis, was elected president of the association during the morning business session, succeeding James E. Stark. The other officers elected were: R. J. Hackney, Memphis, first vice-president, and Elliott Lang, Memphis, treasurer. Vice-presidents in charge of the various districts of the association were elected as follows: T. M. Brown, Louisville, Ky.; Fred W. Mowbray, Cincinnati, Ohio; W. B. Morgan, New Orleans, La.; and Frank C. Cannon, Helena, Ark. Vice-presidents elected to head the various standing committees were: S. B. Anderson, Memphis, legislative committee; B. F. Dulweber, Greenwood, Miss., car supply; George C. Eheman, Memphis, finance and auditing; James E. Stark, Memphis, export traffic; T. E. Sledge, Memphis, rate book; Walker L. Wellford, Memphis, rate adjustment; John W. McClure, Memphis, assessment and membership; O. M. Crebs, Memphis, demurrage and storage; George W. Hand, Cincinnati, freight claims.

Resolutions were adopted by the association urging the federal government to pool the car supply of the country and also to build at least 250,000 cars to be leased to railroads at terms specified by the Interstate Commerce Commission. Another resolution adopted related to railroad legislation, and contained several principles which were published in a recent association circular. Another resolution adopted stated that it was the sense of the meeting that the Treasury Department be requested to modify its rulings so as to permit through bills of lading certificates of exportation to be attached to papers at the port.

That the government should build cars to be leased on a per diem basis which could be at least self-sustaining was the suggestion of James E. Stark, president of the association, in his annual report, which practically opened the convention.

"I believe it is proper and feasible for the government to build cars to be leased on a per diem basis which could be at least self-sustaining if not profitable to the government," he said. "I understand the Railroad Administration has built about 80,000 cars, but these were built for and sold to individual railroad companies; my suggestion is that the government should build not less than 200,000 cars that can be used when needed, and these cars should be government owned and a charge made for their use on the railroad they are on, and on a basis that would eventually pay for the cars, and thereby get action to relieve the car situation earlier than could be done by the railroad companies themselves."

THE RAILROAD ADMINISTRATION has executed a compensation contract with the Southern Pacific Terminal Company for $284,761.

Annual Report of Women's Service Section

How the Railroad Administration Has Looked After the Welfare of Its Women Workers

IN THE CREATION of the Women's Service Section of the Division of Labor it was recognized that the welfare of the women employees should have especial consideration, says W. S. Carter, director of the Division of Labor, in his annual report to the director general.

"In the conduct of the work of this section the Railroad Administration is fortunate in the selection of those who administer the work," he says, "as is made evident by the enormous amount of work done in a new field in so short a time. It would be unfortunate for the women railroad employees should the work of this section terminate with the end of federal control of the railroads. The officers of this section are as follows: Manager, Pauline Goldmark; field agents, Edith R. Hall, Helen Ross, Florence E. Clark."

Following is an abstract of the annual report of the Women's Service Section by Pauline Goldmark, which is included in Mr. Carter's report:

The outstanding feature of the year has been the continued employment of women in the service. While the number has decreased 20 per cent since the highest point reached on October 1, 1918, it still remains two and a half times larger than before the entrance of the United States into the war. Recently, moreover, there has been an increase again in the total number employed by certain roads.

An important development during the past 12 months has been the final discontinuance of certain forms of railroad work which women performed under unsuitable conditions, or which involves too great muscular effort and undoubted danger to their health.

Of special interest in its bearing on the employment of women have been the high rates of pay which they are receiving (compared with wages ordinarily paid them for similar work in private employ), owing to the observance by the railroads of the administration's ruling that women shall receive the same rates as men when employed in the same class of work. Of great benefit also for the women in the service have been the extension of the eight-hour day, the reduction of night work and of the seven-day week.

The section has been active in improving physical conditions of work, including health and comfort facilities, and proper hours of work, and also to insure the correct application of the wage orders so that there might be no discrimination against the women employees. Many conferences were held with railroad officials on the best methods of putting the recommendations of the section into effect. It has also been necessary for the manager of the section to deal directly with the higher officials in a number of cases involving moral issues, which are likely to arise in so large a service.

Much time also has been spent on complaints coming from women employees in order to assure an equitable settlement. It has been necessary to instruct them in the proper procedure to be followed. While the wage orders specify that individual grievances in the initial steps are to be handled by the committees of the various organizations, yet whenever large groups of women employees were affected and appeared to be unfairly deprived of the rights assured them under the wage orders, the Women's Service Section has made adjustments. It has also brought to the attention of the administration the needs of unorganized groups of employees, such as laundry workers, seamstresses, matrons, etc., who have no other channel of communication. Special complaints coming from outside agencies interested in the general welfare of women in industry have been dealt with by the section.

Inspections have been made by the manager and the three field agents of the section which cover the employment of approximately 13,000 employees, located in 23 states and the District of Columbia. A great variety of conditions has been reported on, which, together with the quarterly reports of the railroads on the number of women in their service, is the basis for the report.

Number of Women Employees

By request of the administration the railroads have filed quarterly reports with the Women's Service Section on the number of women employees, which have been compiled for current use and printed once a year. Regular reporting began January 1, 1918. These figures have proved extremely useful in showing the rise and fall in the number of women employees and the occupations in which they are working. They have, in fact, thrown light on the whole chapter of women's new position in the railroad world, and make it possible to estimate how far the various employments are likely to be permanent.

The extent of the change is best shown by a comparison of the figures of January 1, 1917, giving the pre-war level, with the later statistics. They show that the number almost doubled during the year 1917, viz.:

	Jan. 1, 1917	Jan. 1, 1918	Oct. 1, 1918	Oct. 1, 1919
First-class roads.....	[1]31,400	61,162	101,785	81,803

[1] Estimate based on returns from 106 roads employing 25,428 women.

The high-water mark of women's employment came on October 1, 1918, when there were 101,785 in the service, an increase of 66 per cent in the first nine months of 1918, and a gain of approximately 225 per cent as compared with pre-war conditions.

This change was not made without difficulties. It was found at first that the conventions of the railroad world were unfavorable to the admission of women in many positions, and it was only the extreme shortage of male labor, due to the draft and the attraction of higher paying occupations, that made the substitution possible. A number of managers, foreseeing an acute need of labor if the war was to continue, began to insist in 1917 on the introduction of women in every class of work. This process went on steadily until the armistice.

The policy of the different railroads varied in regard to using this new labor supply. The largest number employed by any one road at the time of maximum employment was 14,992. Nineteen of the more important lines (employing 57 per cent of the total number) had doubled or more than doubled the number of their women employees by October, 1918. Seven roads increasing 60 per cent or more are given below:

Roads	Number of employees, Jan. 1, 1918	Number of employees, Oct. 1, 1918	Increase Per cent
(1)	3,152	5,075	61 0
(2)	2,038	3,353	64 5
(3)	829	1,391	67 8
(4)	934	1 613	72.7
(5)	1 074	2,064	92.2
(6)	753	1,567	108 1
(7)	5,777	14,992	159.5

After the armistice there was an immediate reduction in the total number of women employees, which showed especially in the reports for April 1, 1919, when the decrease amounted to 14.9 per cent compared with the maximum of October 1, 1918. The total decrease on the date of the last

report is 19.6 per cent. The percentage of loss, however, has grown very much less in the last quarters of the year.

NUMBER OF WOMEN EMPLOYED BY THE RAILROADS ACCORDING TO TERRITORY

CLASS I ROADS

	Oct. 1, 1918	Jan. 1, 1919	Apr. 1, 1919	July 1, 1919	Oct. 1, 1919
Eastern territory..	54,955	54,975	46,251	43,705	43,310
Southern territory.	11,447	11,012	10,295	9,430	9,262
Western territory..	35,383	33,750	30,014	29,197	29,231
Total.....	101,785	99,737	86,560	82,332	81,803

Comparison with figures of October, 1918, shows that in the western and southern territories the number showed an appreciable decline by January 1. In the eastern territory, on the contrary, no reduction was reported until April 1.

The reasons for the total decrease must be carefully considered for an understanding of the present status of the women employees. Two important factors were in part responsible—first, the return of men from service with the army and navy who were reinstated by the railroads according to their seniority, and, second, the drastic reduction of labor force on the railroads of the country, made by the administration early in the year in order to effect necessary economies. In both cases, on account of their lower seniority rights, women were properly laid off.

Among other causes there undoubtedly was a weeding out of inefficient workers during these months and the removal of women workers from a number of occupations. The Railroad Administration requested that the employment of women be discontinued in trucking, in track work, and as parcel-room attendants, on account of the risk of overstrain and injury.

During the past year the dismissals have not been balanced to any great extent by the addition of new women employees. In many offices the number had reached as high as 50 per cent or more of the whole force in 1918. Many officials did not wish to have such a preponderatingly large percentage of women in their offices; hence, a tendency has been noted not to take on more women when vacancies occur, even in positions formerly held by them.

More recently, however, there has been a slight turn in the tide. The figures for October, 1919, show that 55 Class I roads have actually increased the number of women in their service. The additions are in most cases small, but 8 roads have each taken on or recalled to service 40 or more women, and the total additions have amounted to 1,151 women, scattered in all classes of employment, but chiefly in clerical positions.

NUMBER OF WOMEN EMPLOYED BY THE RAILROADS ACCORDING TO CHARACTER OF OCCUPATION

CLASS I ROADS

Summary of Eastern, Southern and Western Territories, 1919. (Compiled from Quarterly Reports of Railroads.)

	Classes of employees	Jan. 1	Apr. 1	July 1	Oct. 1
1.	Attendants	1,814	1,424	1,272	1,216
2.	Bridge tenders	1	3	19	....
3.	Car department	1,525	1,094	931	881
4.	Clerical or semi-clerical	74,945	67,715	64,741	64,656
5.	Cleaning	5,473	4,738	4,676	4,735
6.	Elevator operators	100	100	96	92
7.	Messenger service	754	624	562	549
8.	Personal service	2,863	2,443	2,410	2,450
9.	Roundhouse work	1,290	779	595	596
10.	Shop work	2,829	1,318	1,082	1,047
11.	Signal service	234	171	138	156
12.	Station agents, assistants, agent-operators	1,175	1,203	1,136	1,104
13.	Supervisors of women employees	105	88	86	88
14.	Switch tenders and other yard work.	37	28	26	14
15.	Telegraph operators	2,584	1,955	1,722	1,663
16.	Telephone and telegraph operators (in train movement)	2,122	1,561	1,519	1,316
17.	Train service	94	80	71	58
18.	Warehouse and docks	736	369	412	330
19.	Watchwomen	721	588	566	602
20.	Other service	335	267	272	250
	Grand total	99,737	86,560	82,332	81,803

It will be seen from the above compilation that the decreases for the class of clerical workers during 1919 have been proportionately less than for any other, namely, 12.2 per cent, as compared with the total diminution of 19.6 per cent.

From the point of view of occupation, the greatest change has taken place in the shops and roundhouses. The publicity given to these new and more sensational forms of women's work during the war had given rise to a mistaken impression as to the extent to which they were used. As a matter of fact, the number in this class never exceeded 7,210. It has now fallen to approximately 2,500. To explain this shrinkage, it must be remembered that women were largely used as laborers in these places and were often found unsatisfactory, because too much heavy labor was required of them. Under these circumstances it was inevitable that they should be dropped when man labor again became available. This criticism, however, does not apply to the women in the more skilled occupations and to those employed as shop cleaners.

Next in the decrease are the operators handling train messages, namely, 1,472, October 1, 1919, compared with 2,833 a year previous, a drop of 48 per cent. A great many women in this class have been furloughed from their positions by the return of men from military service, as these jobs are highly prized, and are not willingly relinquished by their former occupants.

Women have not been displaced so largely in occupations in which they have long been employed, such as car and station cleaning. The number, for instance, declined only 15.4 per cent. This decrease was caused principally by the fact that women are less employed to clean the outside of cars, which is very exerting work, and are no longer required in many places to work on night shifts.

Data From Field Inspections

Beginning early in the year, the eight-hour day has been put increasingly into effect in all the railroad occupations in which women are employed. The inspections of the Women's Service Section show that of a total of 12,908 women employed in all classes of work, 90 per cent were working 48 hours or less (i. e., a day of 8 hours or less), compared with a total of 70 per cent working these hours in 1918, as stated in last year's report. The number of women employed more than 60 hours amounted to 2.2 per cent as compared with 8 per cent in this group in 1918. It is to be noted that almost the entire number working these long hours were car cleaners, namely, 235. Beginning last October, however, this class has had its hours reduced to eight a day, since they were then included in the new shop-craft agreement, which stipulates these hours.

Only 645 women were employed on night or evening shifts —namely, 4.2 per cent of the total, and that more than half of this number worked 48 hours or less per week. The ages of the women so employed were found to be as follows: Over 21 years of age, 569; under 21 years, 41 (35 unreported).

The largest number of women on night duty are in the clerical group, principally telephone switchboard operators in private exchanges and to some extent clerks in offices where the work is necessarily continuous both day and night. The operators who report trains and handle train messages are another class employed on three tricks, covering 24 hours. Nearly 63 per cent of the operators included in this table are on the second and third tricks; that is, they either report for work or finish between 10 p. m. and midnight. As the newer comers they have the less desired hours, not having acquired sufficient seniority to entitle them to a choice of the best tricks.

Watchwomen, who are stationed at grade crossings, were, on the other hand, found to be working only first and second tricks, and therefore ended their day's work not later than 10 o'clock at night.

Employment on seven days a week still persists in various classes of work; 3.7 per cent of the total number were work-

ing 365 days a year. The reduction in these figures as compared with previous practice is partly explained by the removal of women from certain occupations, such as laborers and cleaners in roundhouses.

The car cleaners are conspicuous for their continuous toil, being on duty every Sunday in the month, or else having reliefs only once or twice a month. With the decrease of their daily hours from 9 or 10 to 8 a day, under the new shop-craft agreement, as above described, Sunday work will also be eliminated. Beginning last October, it is now to be permitted only every other week, and since the punitive rate of time and a half is paid for Sunday work, every effort will obviously be made to reduce it to the lowest amount compatible with the needs of the service.

A large percentage of the matrons and janitresses also have unbroken days of service. They are on duty in public waiting rooms, where their duties cannot be discontinued on any one day of the week, as it is difficult to secure reliefs, since only two or three are employed in any given locality. This, however, does not relieve the management from the responsibility of requiring such continuous service from this class of workers. As a case in point, a certain matron may be mentioned who, according to her own statement, had never had a day off in her five years of service, except when she was ill and her daughter was allowed to take her place.

Although only a small proportion of the total number of women employed as telegraph and telephone operators in train movement, by all railroads of the country, is included in Table IV, it probably indicates conditions which prevail for the majority of these workers, i. e., two days a month as "time off" as the maximum. Of the 97 operators above included, 31 have reliefs twice a month and 59 have no days of rest. In an occupation which involves such constant responsibility as reporting trains, and receiving and delivering train messages, it is indeed surprising to find so little progress made in the regularizing of the weekly day of rest. It would seem from the point of view of safety alone to warrant correction.

The improvement of working conditions for women during the year has been marked on many roads. The increasing interest is no doubt due to the good effects observed in the war industries of attending adequately to the workers' physical needs. Direct supervision of health has unquestionably justified itself for both men and women. The latter were found to react favorably to improved surroundings, even more quickly than men, so that there can be no question of the desirability of providing facilities insuring higher standards of comfort.

When women were first brought into the service there were practical difficulties in making place for them, especially in the shops and yards, on account of the lack of toilets, dressing rooms, etc. The construction of these accommodations during the war emergency was most difficult, and often could not be undertaken as extensively as was desirable. Even at the present time the inability of the railroads to incur expenses has handicapped improvements, and in many places only the most urgently needed changes have been made, and accommodations are still insufficient. Inspections by the Women's Service Section have revealed such serious defects in a number of places that immediate correction has been insisted on. In striking contrast with neglect of this kind, it has been found that a number of roads are making ample arrangements for the women employees, adding to the usual facilities, rest, lunch and first-aid rooms. They state that their employees are performing better work in response to these improvements.

Rest rooms have been one of the features which have been most appreciated by the women employees. The furnishings include one or more couches or cots to be used in cases of emergency, or for temporary indisposition, if a special first-aid room is not provided. The Women's Service Section discovered in course of its inspections places where no proper care was given to the needs of women employees, and girls who were sick were found lying on the floor.

In many instances the rest rooms are used at the noon hour for lunch rooms; equipment being provided for heating food, etc., thus eliminating the bad practice of eating sandwiches in the office or work rooms. This arrangement is found useful especially in outlying offices where outside lunch rooms are not accessible. The rest rooms are also used for dressing rooms wherever the occupations necessitate a change of clothing, as for instance in the case of car and office cleaners and laundry and shop work.

Especially gratifying results have been seen on the roads which have in their service a special supervisor of women employees. As a result of a systematic policy, these offices have been able to secure the most suitable equipment in the various places of women's employment on their lines, to keep continuous oversight of these places by occasional visits, and in general to see that the facilities are put to the best use. During the last year and a half, nine of the railroads, most of them large systems, have employed women supervisors, who are exclusively occupied in women's service work. Six are holding positions directly under federal managers.

In order to discuss the special problems which have resulted from the employment of women and to exchange information on the most practical methods of making necessary comfort and health provisions, the Women's Service Section arranged a conference with these officials, which was held in Chicago last October. Fifteen representatives of the railroads were present at these meetings. It is gratifying to report the excellent co-operation of these officials with the Women's Service Section. They are in a position on their various lines not only to improve conditions for women employees, but to deal personally with problems affecting them, which can more appropriately and more effectively be dealt with by a woman than by men officials.

The labor laws regulating the employment of women have been observed almost without exception, as directed in the first wage order of the administration. In regard to sanitation and general facilities the experience of the Women's Service Section shows that the standards are generally higher than those required by the laws.

Difficulties have been met, however, in limiting the hours of work as specified by various states. It has been necessary in a few instances for the Women's Service Section to make adjustments to secure compliance with the law. While the eight-hour day on the railroads is now almost universally observed, occasional overtime in certain offices, such as the accountant's and paymaster's, is held to be indispensable. In a number of cases it has been found possible to secure a substantial reduction of the extra hours by distributing the work among a number of employees in a given office, rather than requiring it of a special group. Even in certain paymasters' offices work has been distributed more evenly throughout the month by writing checks in advance. In case, however, it has been found that overtime cannot be eliminated in a given position, then it becomes necessary for the women to exercise their seniority rights in bidding on other positions which they can hold without infraction of the law. This issue has occasionally come up in bulletining positions on which women are not allowed to bid, but adjustment has in each case been made without loss of seniority rights. The Women's Service Section has followed the policy of urging reduction of excessive hours whenever they occurred, whether or not the state law applied to the occupation concerned. It has drawn the attention of the local officials not only to the extra cost of overtime, but to the impaired efficiency of the workers due to night work and resulting fatigue.

This section has also been called upon to intervene in a

case where the labor law was unfairly used as an excuse for discharging women. This happened in a state where the law specifies a lunch period of at least 30 minutes for them. The new shop craft agreement allows only 20 minutes when two eight-hour shifts are employed, this time being given without deduction in pay. There was thus an apparent conflict between the two provisions, and as a result a number of women car cleaners lost their jobs. The Women's Service Section was, however, able to have them reinstated after securing an agreement that they should be allowed to take 30 minutes for their lunch period in the spread of 8 hours, with the proviso that 20 minutes of that time should be paid for as it is for the men and that 10 minutes should be on their own time. It thus proved possible to avoid the overlapping of the two shifts of workers, which was the purpose of this section of the shop craft agreement, and at the same time to comply with the law affecting women employees.

This case illustrates one of the special activities of the Women's Service Section in obviating unfair discrimination against women employees which has arisen sometimes under the labor laws, and occasionally under other circumstances.

Wages

Women employees have shared in all the wage increases given to the various classes of railroad employees. The rates now being paid are calculated according to the increases specified in the wage orders of the administration. The proportion the women are receiving exceptionally high wages as compared with the usual remuneration given them for similar work outside the railroad service.

Attention is drawn to rates for laundresses and seamstresses compared with wages in other occupations. A majority of the 306 women employed in the railroad laundries and sewing rooms are conspicuously underpaid. Their wages correspond on the whole to the commercial rates, which are known to be on a low scale of remuneration. One-half of the total number were receiving rates ranging from 19 to 28 cents. Twenty-seven laundresses wrongly rated at 19 cents were recently given the increase per hour authorized under Supplement No. 7 to General Order No. 27, but the original wages were so low that even with this increase the pay is very poor, now being 22½ cents per hour. In another laundry 28 employees were affected by the state minimum wage law (effective last May), which increased their hourly rates from 24 to 28 cents. Of the 306 comprised in the investigation of the Women's Service Section 233, or 76 per cent, were receiving less than $70 a month.

In view of the degree of skill required, the present rates still constitute a grave inequality as compared with the pay of railroad employees doing unskilled work, as, for instance, the station cleaners, also included in the same table, 87.1 per cent of whom are receiving $60 or more per month, or the car cleaners (in the next table), who are now being paid 45 cents an hour, or $93.60 a month. In fairness to the

RATES OF PAY PER MONTH FOR WOMEN EMPLOYEES IN VARIOUS CLASSES OF RAILROLD WORK

Occupation.	Number of employees whose rates of pay per month are— $39 and under $40.	$40 and under $45.	$45 and under $50.	$50 and under $60.	$60 and under $70.	$70 and under $80.	$80 and under $90.	$90 and under $100.	$100 and over.	Total.
Office girls and messengers	..	2	7	35	28	24	5	..	..	101
Telephone operators (switchboard)	..	..	..	..	11	133	67	21	5	227
Matrons and supervisors	..	..	..	5	24	34	21	4	3	91
Cleaners and janitresses	..	12	2	13	18	112	31	15	6	209
Restaurant employees	..	..	..	6	17	..	1	1	11	36
Crossing watchwomen	..	..	..	4	27	12	3	..	..	46
Miscellaneous	..	..	..	..	..	4	5	7	8	24
Laundresses	27	4	28	76	57	20	24	1	..	237
Seamstresses in linen rooms	..	..	10	10	21	10	9	8	1	69
Total	27	18	47	149	193	349	166	57	34	1,040
Per cent	2.6	1.7	4.5	14.3	18.5	33.6	16.0	5.5	3.3	100

[1] At $69.

majority of the women come under the order for the clerks—namely, Supplement No. 7 to General Order No. 27.

In the course of inspections by the Women's Service Section the wages paid to the women in various classes of employment were ascertained. The following tables have been made up from this material. They, therefore, give the wages being paid at the time of inspection. Recently increases have been made for certain classes under the new shop craft agreement, which will be mentioned below:

RATES OF PAY PER MONTH FOR WOMEN EMPLOYED AS CLERICAL WORKERS

Number and per cent of employees whose rates of pay per month are—

$45 and under $50	$50 and under $60	$60 and under $70	$70 and under $87.50	$87.50	$87.51 and under $95	$95 and under $105	$105 and under $115	$115 and under $125	$125 and under $135	$135 and over	Total
43	287	137	223	5,317	977	1,953	731	241	185	30	10,124
0.4	2.8	1.4	2.2	52.5	9.7	19.3	7.2	2.4	1.8	0.3	100

This group includes clerks of all kinds, checkers, ticket sellers, information clerks, parcel-room attendants, baggage checkers, etc. The minimum rate of pay for them is specified in the wage orders as $87.50. Approximately 50 per cent receive this exact amount and 41 per cent a higher rate. Those receiving less than $87.50 (6.8 per cent) are engaged in such occupations as sorting waybills, tickets, etc., and work not requiring clerical duties, in the nature of copying, transcribing figures, making entries of records, etc. According to Interpretation No. 20 of this order they are not entitled to the full clerical rate. With the exception of this small laundresses and seamstresses it is to be hoped that they will be given a new classification as soon as possible.

RATES OF PAY PER HOUR FOR ATTENDANTS, COACH CLEANERS, AND LABORERS

Occupation.	Number of employees whose rates of pay per hour are— 28 cents and under 30 cents.	30 cents and under 33 cents.	33 cents and under 36 cents.	36 cents and under 40 cents.	40 cents and under 45 cents.	45 cents.	Total.
Attendants, storeroom	..	..	8	74	62	20	164
Car cleaners	43	361	416	190	102	..	1,112
Laborers	..	..	147	183	77	8	415
Total	43	361	571	447	241	28	1,691
Per cent	2.5	21.3	33.8	26.4	14.3	1.7	100

The above gives the wages for attendants, car cleaners and laborers. The majority are receiving hourly rates of 33 cents to 40 cents. The car cleaners recently received a substantial increase under the new agreement of the Railroad Administration with the Railway Employees' Department, American Federation of Labor, which brings the present rate for all car cleaners up to 45 cents an hour, effective October 20, 1919, and retroactive to May 1. They are now entitled to overtime rates for Sunday and holiday work and all overtime beyond eight hours a day.

The laborers included in the above classification were employed in shops, roundhouses, and yards. The majority of them were employed to sweep and clean the shops. A number were engine wipers and others were operators of electric trucks at freight transfer stations and docks.

The more skilled employees of the shops and roundhouses are graded as craftsmen and helpers, the latter formerly receiving 45 cents an hour, but now 49 cents. The inspections covered 82 of this class holding the following positions: Oilers, box packers, operators of bolt threaders, nut tappers and drill presses; hammer operators, and helpers of coremakers, patternmakers, painters and upholsterers. Few women were in the higher paid positions. Seventeen were doing upholstering and were receiving the full rate for carmen of 68 cents an hour; three were in the third year and receiving 62 cents. A scattering of machinists and moulders were receiving 50 or 53 cents an hour, according to their length of service.

The women employed as telegraph and telephone operators, who are handling train orders, blocking and reporting trains, receive a minimum rate of 48 cents, as specified in Supplement No. 13 to General Order No. 27. The range of their wages is given below:

RATES OF PAY PER HOUR FOR TELEGRAPH AND TELEPHONE OPERATORS HANDLING TRAIN ORDERS, BLOCKING, AND REPORTING TRAINS.

Number of women employees whose rates of pay per hour are—						
48 cents	52¾ cents	54½ cents	56 cents	57½ cents	63 cents	Total
4	18	21	35	4	1	83

The group of women in this occupation are largely "on the extra list"—that is, the reserve list—and are called upon to fill occasional vacancies caused by illness or "temporary vacancies" up to 30 days pending the permanent filling of the positions after advertising and bidding in. Many of the women were formerly holding fixed positions, but have been reduced to the "extra list" by the return of men from military service and by reduction of traffic owing to the coal strike, etc. It has been found in the course of inspection that of a total of 201 women operators, 93 were on the extra list, and therefore their earnings were entirely irregular. Another cause for uncertain earnings is the seasonal variation in the jobs.

Except for this group and rare lay-offs in other occupations on account of reduction in labor force, railroad work is, on the whole, continuous without seasons of unemployment. While the above wage tables specify the rates of pay and do not give the earnings, it is, however, true that these rates give a good picture of the actual pay. Attendance in railroad service is good compared with most industries, and, as a general rule, no deduction is made for occasional absence on account of illness. It is fair to say, on the whole, that the earnings of an individual worker should average approximately the amount payable on full-time employment.

One of the attractions of the railroad work for women undoubtedly lay in the high rate of wages as compared with the pay in other positions open to them. The Railroad Administration safeguarded the interest of the men as well as the women employees, by preventing any undercutting of the rates for the latter. It stipulated in its first wage order that they should receive the same rate of pay as men for the same class of work. After a test of one and a half years it can be said that this principle has in fact been applied by the railroads. It has not been the mere formula of "equal pay for equal work," so variously interpreted in other industries and so often devoid of real benefit to the women who are working in the same occupations with men. There has been no question of adjusting the wage to the production of the individual employee—a method which experience shows to be most difficult of practical application.

In railroad work the standardization of rates has been worked out to such an extent that the rate is put on the position and not on the person. This means that the quality and quantity of service expected of any employee in a given position or job is fixed, and the rate for the same has been settled by collective bargaining. It follows that under these conditions the women are being put to a real test of capacity. They must measure up to the requirements of a given position or else be displaced by a person who is more capable of performing the duties.

During the war emergency undoubtedly a large number of the women employed had had no previous training (except stenographers and comptometer operators), and had to be instructed in the details of their work. There was also no time to make a careful selection of candidates. Even with the best methods of training it is probable that a certain percentage of the employees could not have been brought up to high standards of work. But the inefficiency, which is often complained of, should not be attributed to women alone. Even before the United States entered the war the railroads were suffering a depletion of their best workers on account of the low rates of pay which prevailed before federal control. In 1917 they were facing a literal breakdown of their clerical forces. Many of the new men who were employed at this time were admittedly poor material. In fairness to the women employees, this fact should be emphasized in considering the various estimates of their efficiency which are made by their superiors. Under the changed conditions of the labor market, with men again available, the women have, of course, to meet the test of capacity. It is important, however, that the test should be fairly applied and that no other consideration but efficiency should be allowed to enter.

Positions Held by Women

Instead of quoting favorable or unfavorable opinions in regard to the value of women's accomplishment in the railroad service, it will be more profitable to apply the test of experience to this moot question and to set forth some specific facts as found by this section. With this idea in mind, as well as to collect information on methods of training, a preliminary study of a number of offices was begun a few months ago. The special purpose of the inquiry was, in brief, to discover in what new positions women were placed in the various offices, and in what class of work they had shown the greatest ability.

The inquiry has so far covered 11 offices in various parts of the country, which were chosen without reference to the attitude of the officials toward the women employees, but which should as far as possible be representative of general conditions. It was believed necessary to take large units in order that the methods of dealing with large numbers of employees might be observed where the problems of training are more difficult than in the smaller offices where the personal element plays a large part in the instruction of newcomers. Further, offices of various kinds were included in order to make possible the examination of different classes of position. The list includes five types which are given in the following table, together with the number of men and women employees:

	Number of employees		
Name of office	Men	Women	Per cent women
Car accountant	74	268	78.3
Freight claim	91	86	55.0
Freight auditor	985	979	50.0
Local freight	100	97	40.0
Auditor disbursements	211	98	32.0
Total	1,461	1,528	51.1

The first significant fact which emerges from the table is the large percentage of women in all of the offices as compared with men, amounting to more than 50 per cent; and in the second place the great variation in the different offices, running from 32 to 78 per cent. While this inquiry has covered too small a proportion of the clerical workers to yield general conclusions, it gives significant examples of advancement which will be described below.

The largest proportion of women is found in the office of car accountant, this preference being explained to a great

extent by the character of the work. Much of it consists of mechanical entering of records showing car movement—a job which requires patience and accuracy, but which offers less chance of advancement than work in other offices. There is in addition a vast amount of work in making ready the tickets for the car-record clerks. This preparation consists of filing on pegs the "cut-ups" or small tickets, the handling of which requires nimbleness of fingers.

Office of Car Accountant

Women, however, have been intrusted also with more responsible tasks in the office of car accountant. They have been working on the tracing desk in one of the offices for some time securing information on the movement of foreign cars. This involves going through records to locate the car and putting the information in written form. Women are also showing executive ability in this department—one of them holding position of head clerk in charge of car-record work has 81 women under her. Two are heads of local and foreign per diem bureaus, the former supervising 9 women and 3 men, the latter 6 women and 3 men. Among the more important positions involving some skill in clerical work is the head of a per diem unit in private line mileage and her assistants, who compute the mileage, and on their calculations payments are made. Practically all of the above desks have been filled by women for a number of years.

Auditor of Freight Claims

The chief objection which has been urged against women is their lack of familiarity with railroad work. A boy who grows up in the service acquires general knowledge as he advances from job to job. There is no doubt that women were handicapped in this respect when they first began work on account of this lack of experience, especially in outside work, and because of their lack of familiarity with the materials used. Women have, therefore, only rarely qualified as clerks at a freight-claim desk, as this requires a full understanding of claims. One of the railroads furnishes an example of systematic instruction in this work: A group of women were given lectures for one month on the various types of claims, details of rule book, etc. They were then taken to freight houses to see how freight is handled; they learned the trade name of commodities; they visited yards to examine loaded freight cars on the tracks; they observed the construction of empty freight cars and went to car-repair shops to examine damaged ones; they visited local stations to observe the agent's work in handling freight, and then traveled by way freight to see the methods of handling this class of goods. Finally the group was taken to the shipping department of several large factories to see how articles are packed. In fact, as the agent said, they saw and learned a great deal more about the movement of freight than most men in the offices knew, and they were thus able to begin the work of investigating claims with a background of actual knowledge. It enabled them to qualify for highly paid positions, which had previously been considered too difficult for them. They are now receiving salaries ranging from $120 to $150 per month.

Office of Freight Auditor

Work in the freight auditor's office ranges from that which is simply mechanical to that requiring technical railroad knowledge. Women first entered this office through the machine jobs, and have almost completely displaced men in this class of work, viz., typewriting, comptometer, punching cards for the Hollerith tabulating machine, etc.

A few women have been in the more difficult jobs in the offices of freight auditor for some time; the larger number, however, have advanced only recently through the application of the seniority rule. One woman has had some 12 years' experience in revising local and interline waybills. Last February she bid in on the job of reviser in the overcharge claim bureau and obtained this desk, ranking next to the head clerk in this bureau. The shortage of revisers during the war emergency made it necessary for this same office to hold a night class for both men and women. As a result a woman is now head of one of the units, revising local waybills, with four women assistants.

Making up of statements for foreign lines, which requires a knowledge of the division of accounts among the roads, is work which a few women are also doing. One woman was on this desk when the more difficult system of percentage was used under corporate control. Another woman in a correspondence department is handling the adjustment of agents' accounts, a job requiring familiarity with their work on the line as well as an ability to deal with people through correspondence. Women are also found as unit heads on correction accounts, on initial jobs in the claim bureaus, and in the tracing bureaus. Executive jobs which require less technical railroad knowledge, but which demand considerable ability in directing the work of others, are also filled by women; two women direct comptometer bureaus, which do the work for the whole freight auditing offices, one being in charge of 38 and the other in charge of 30 subordinates. The training of the new operators rests largely with the heads, for while they may know how to run the machine, they are not acquainted with the railroad accounts on which they must work.

One of the most interesting points made clear in this brief inquiry is the disparity of practice in the different offices which were visited. Whereas, for instance, one set of officials may say that the employment of women is impossible in given positions, in another office women may be found employed in these jobs for some time and giving satisfaction. In two railroad offices, for instance, there were no women on any form of revision, while in the third, one woman has been on revising work for at least 12 years, and at present there are six or seven employed, not only in the revision of local waybills, but also of overcharge claims, both in the simplest and most expert forms of this work.

It may be said that even in the limited field of this inquiry women have been found in practically every form of work. As far as machine operations are concerned they are said by their superiors to be careful and accurate and to pay close attention to the minute details of the various operations. In a number of general offices the women's performance shows not more than one-half of 1 per cent error per month. Several machine operators, for instance, had an almost perfect record in punching cards during three successive months, although they were doing thousands a day. In the less skilled occupation of sorting, girls are said to show greater dexterity and speed than boys who were formerly employed, and are said to be more orderly and better behaved.

As far as the more responsible clerical positions are concerned, requiring special knowledge, women have at least reached the initial jobs in bureaus doing expert work. They began entering the office of car accountant in other than machine positions many years ago, and there are instances of women holding such positions 25 or 30 years. On the other hand, as far as this inquiry shows, even today women have been only a few months in some of the more important clerical positions.

Testimony from their superiors indicates that women will undoubtedly progress further in all forms of work. While in some offices there is hesitation in encouraging them to advance into the more responsible positions, in other offices there is distinct effort to put no obstacle in their path—in fact, they are being urged to bid on the higher positions. While some officials are still testing out the capacities of their women employees, others are emphasizing the need of

training as the only requisite for further advancemnt. As on official put it, "If women have a desire to advance and get a well-rounded background, as a young man must do in orderto secure promotion, they can do any class of work." Another official stated, "We used to hire women in positions set aside for them, such as stenographers. Of course, they never had a chance to develop. We start the boy in at the bottom as office boy and give them a long ladder to climb. Things are changing now. If the women are started at the bottom like the boys and given the chance, they will climb, too."

There is no doubt that the new seniority rules opened up the door of advancement to a much larger group of women than had previously had these opportunities and that women in general have eagerly taken advantage of these new openings. The conditions under which they are working are more auspicious in regard to the cardinal points of wages and advancement than have been previously offered them in any other field.

Railroad Conferees Considering Compromise

THE CONFEREES on the railroad bill are still a long way from an agreement on the most vital features of the proposed legislation, but have at least progressed to the point of considering compromise propositions on the questions on which they are farthest apart, and when they adjourned on Tuesday until Thursday, expressed a greater degree of hopefulness than they have heretofore. The adjournment was taken because Senator Cummins went to New York on Wednesday to address the Association of the Bar.

On Friday, January 23, an early adjournment was taken to the following day to allow the House conferees, who had reiterated their refusal to accept the Senate's rate-making rule, an opportunity to present a substitute. On Saturday morning they offered a proposal which consists essentially of the rate-making rule which was in the Esch bill as reported by the commitee, which was eliminated by the House. This is a general instruction to the Interstate Commerce Commission without any definite percentage or other standard of reasonableness. To it was added the idea of rate-making groups contained in the Cummins bill, that is, whereas the rule of the Esch bill would require the commission to take into consideration a fair return on value, the proposed substitute would require that the value and the return be figured for each group or district. The substitute proved unacceptable to the senators, and on Monday, Senator Cummins offered a counter proposition to amend Section 6 to provide for a readjustment of the percentage of return by the Interstate Commerce Commission every three years instead of every five years. He also suggested that a provision might be made as to what the commission should take into consideration in readjusting the percentage. This would not meet, however, the objection to the limitation of earnings.

It is understood that there has been considerable pressure brought to bear on the conferees because of opposition to Section 6 in the House, and also to some extent in the Senate.

While all the news that has come from the conferees indicates very little progress from the state of deadlock in which the conference began, and while this fact has led to many predictions that the legislation will fail, it is believed that the loss of prestige of the Republican party if it should be unable to pass a railroad bill after two years of condemnation of the Democratic management of the railroads, constitutes a much stronger reason for confidence that the conferees will ultimately reach some kind of an agreement before the date on which the roads are to be returned to their owners.

All indications point to a failure of any legislation dealing with railroad labor in connection with the proposed legislation as to railroad regulation. The conferees have devoted several days to the conflicting labor provisions of the Cummins and Esch bills, and have announced that they are so hopelessly deadlocked that they will probably have to refer the question back to their respective houses for a vote. Neither side of the conferees is willing to yield its position on the anti-strike provision, which is favored by the Senate and disapproved by the House, and therefore little consideration has been given to the other details of the labor provisions of the two bills, which also vary widely.

The Esch bill contains the provision confirming for the future the wage orders of the Railroad Administration and providing for bi-partisan boards of adjustment to deal with wage questions, with no referee to decide in case of a disagreement. The Cummins bill provides wage tribunals, but gives a power of final decision in case of a disagreement to the transportation board. If these should be referred back to the House and Senate, each body would doubtless adhere to its original position, and neither side would be able to prevail. The Senate would insist on its anti-strike clause, while it seems certain that the House would not accept it unless labor should commit some overt act which would further arouse sentiment against it. There are also many advocates of the idea of taking the labor provisions out of the railroad bill, to be considered later separately, so as to simplify the issues, on the theory that the labor question is complicating the issues which represent the primary purpose of the legislation.

A delegation of representatives of the Farmers' National Council and of several labor organizations appeared before the conferees on January 26, and persuaded five of them to listen to their arguments for a two-year extension of government control. The farmers' organization was represented by George P. Hampton and B. C. Marsh, but the conferees sought in vain for any farmers in the gathering. H. E. Wills, legislative agent of the Brotherhood of Locomotive Engineers, said railroad employees expected that a two-year extension would lead to still further extensions. William Coleman, of the Wisconsin State Federation of Labor, and David Kugler, of the Milwaukee Trades Council, told the conferees that labor would try to defeat members of Congress who do not express his views on railroad legislation. Mr. Coleman also urged an investigation of the management of the roads under the Railroad Administration, declaring that efforts had been made to discredit the idea of government ownership.

On the following day they went to the White House, accompanied by Secretary Morrison of the American Federation of Labor, and left a letter for the President.

Labor leaders in Washington continue to predict confidently that neither the Esch nor the Cummins bill will pass, and that the railroads will be retained by the Government. Sometimes they say the President will rescind his proclamation of relinquishment, although many lawyers hold that he could not do so if he were so inclined, and sometimes they say that Congress will order him to keep the roads. It is understood that they have a considerable following in the House, as many of the representatives are more dependent upon labor votes than senators whose constituency is statewide.

The statements of the labor leaders, however, are not influencing the Railroad Administration in its preparations for relinquishing its authority at midnight on February 29.

The Railroad Committee of the United States Chamber of Commerce has filed with the conferees a memorandum urging that the Interstate Commerce Commission be given power to suspend the effective date of proposed interstate rates when the commission is satisfied, after informal hearing, that such rates would unduly burden interstate commerce.

Annual Report of Regional Director Holden

HALE HOLDEN, regional director of the Central Western region, in his annual report for the year 1919 to Director General Hines stated that the movement of traffic throughout the year was generally free from serious interruption, although operations were characterized by several features that caused congestion in certain localities. He pointed out that during the six months following the signing of the armistice freight traffic offered for transportation was considerably less than for the corresponding months of the previous year, but that during the fall months of 1919 the volume of business was again extraordinarily heavy.

Mr. Holden called attention to the fact that during the first six months of 1919 there were 2,634,186 cars of revenue freight loaded on the railroads in his region as compared with 2,960,593 cars in the same six months in 1918, or a decrease of 326,407 cars in the first six months of 1919 under the first six months of 1918; whereas during the last six months of 1919 there were 3,217,570 cars of revenue freight loaded as compared with 3,107,531 cars during the last six months of 1918, or an increase of 110,039 cars in the last six months of 1919 as compared with the last six months of 1918. As to cars of revenue freight received from connections there was also a decrease in the first six months of 1919 as compared with 1918, and an increase in the last six months of 1919 as compared with the same period in 1918. The number of cars of revenue freight received from connections in the first six months of 1919 was 1,534,554, as compared with 1,612,174 in the first six months of 1918, or a decrease of 77,620 cars. During the last six months of 1919 there were 1,838,283 cars of revenue freight received from connections as compared with 1,642,320 in the same period in 1918, or an increase of 195,963.

As to grain, Mr. Holden showed that while the total cars of grain loaded in 1919, 352,858, showed a decrease for the year as compared with 1918, 357,474, or 1.3 per cent, nevertheless with the exception of the loading during February and March following the general curtailment of business throughout the country at that time, the loading of grain by months was in excess of that in 1918. He called attention to the fact that decreased loading from primary markets because of uncertain market conditions at that time affected the loading as a whole.

Considering total cars of grain and grain products loaded there was an increase in 1919 as compared with 1918 of 27,485 cars, or 5.5 per cent, the total cars of grain and grain products loaded in 1919 having been 530,134, and in 1918, 502,649.

The loading of livestock also showed an increase in 1919 over 1918, the total number of cars of livestock loaded on the railroads in the Central Western region in 1919 having been 651,936 as compared with 649,515 cars in 1918, or an increase of 2,421 cars, or .4 per cent. On the other hand, coal loading was generally lighter than in 1918.

In this report, Mr. Holden calls attention to the fact that during the year 2,202 solid trains of California fruit, with a total of 80,161 cars, an average of 38 cars per train, were moved to the Missouri River and Chicago.

For the year 1919, there were 77,669 cars rerouted in this region, netting a saving of 12,065,849 car miles, an average of 155 miles per car. Of these cars rerouted, 45,712, or 58 per cent were rerouted at point of origin, with a saving of 7,776,909 miles, an average of 170 miles per car.

Through the consolidation of facilities put into effect in this region during the year, the government was saved a total of $199,797.

The total expense of consolidated offices in the Central Western region, including Chicago, for 1919, was $1,022,525.31, a saving of $347,062.71, or 24.3 per cent, as compared with individual offices for the year 1917. Mr. Holden states in his report that should the consolidated offices continue throughout 1920, there will undoubtedly be a still further reduction in the cost of operation, for the reason that the offices abandoned by lines in the consolidation have been practically disposed of and the loss in rents and other expenses in connection therewith will not be a charge against the unification as they have been during the year 1919.

During the year 1919, Mr. Holden reports that considerable passenger train service that had been eliminated during the period of the war was restored. This increase in service amounted to 4,558,913 miles per annum for the entire region. Passenger travel in the region during the year was heavy, particularly summer tourist and convention travel. For the nine months ended September 30, the passengers carried one mile were 9.3 per cent over the corresponding period of 1918. For September alone the passengers carried one mile increased 26.3 per cent over the same month in 1918.

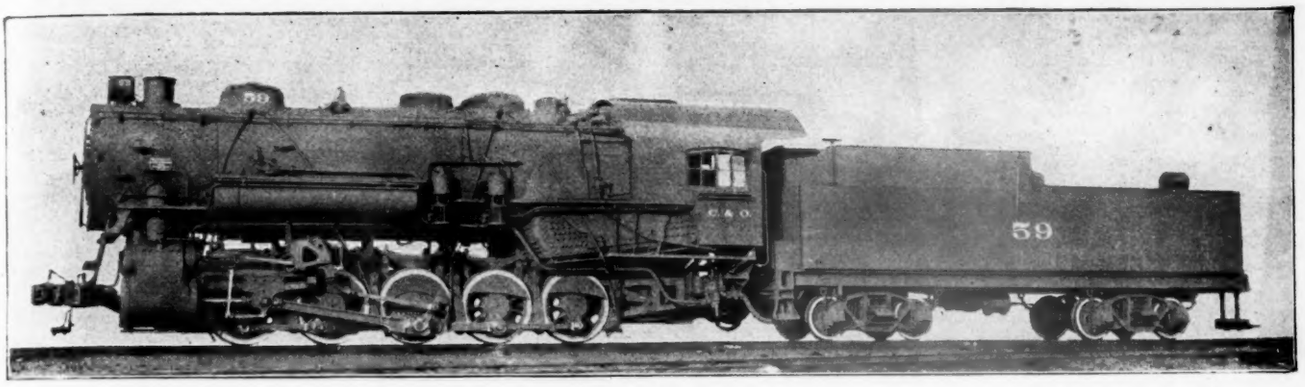
During the 10 months ended October 31, 1919, 56,452,668,000 net ton miles were handled in freight traffic, compared with 62,572,456,000 net ton miles for the same period in 1918, a decrease of 9.8 per cent. This traffic was taken care of with 91,167,000 freight train miles in 1919 as compared with 100,838,000 in 1918, a decrease of 9.6 per cent. The decreases were generally due to the fact that coal traffic which averages about 50 tons per car decreased so very much during 1919 as compared with 1918.

Mr. Holden states that the railroads generally in this region have been well maintained and in some instances the shortage of a normal program in 1918 was overcome in 1919. Special effort was made to confine the work of maintenance of way to prescribed hours of service and to avoid the expenditures of overtime, resulting in a marked reduction of overtime and its ratio to total expenditures. To the end of October, 1919, 77 per cent of the total tie requirements had been inserted, compared with 79 per cent for the same period in 1918. However, by comparing the actual number of ties inserted in 1918 with that of 1919, there is an increase of 4.4 per cent for the 10 month period of 1919 over the same period in 1918. To the end of October 62 per cent of the total estimated rail program had been laid and 23 per cent of it was available for placing in track.

Railroads operating in the Central Western region during the first 9 months of 1919 effected a saving of $4,473,252 in fuel or 8.1 per cent over the same period in 1918, based on a 1,000 gross ton miles unit. For the entire year, Mr. Holden estimated that the saving in this direction would be $5,000,000.

The activities of the regional supervisor of safety have met with good results in the region during the year. According to Mr. Holden's report for the 10 months ended October 31, 1919, there has been a reduction of 200 fatalities and 2,264 injuries under the corresponding months of 1918.

THE HON. E. C. DRURY, Premier of the Province of Ontario, Canada, recently suggested that the Temiskaming & Northern Ontario, owned by the Province, be sold to the Dominion government, to be made a part of the Canadian National Railway System. The reported suggestion disclosed a division of opinion as to the advisability of such action, and business men in the district now served by the Temiskaming & Northern Ontario have united in opposition to such a move. The Cobalt Board of Trade, for instance, sent a protest to Premier Drury urging that the suggestion be discarded. The daily press of the district, however, has been divided, several prominent publications urging that, if the provincial government should sell the road to the Dominion it should be on condition that the line be extended northward to tidewater at James Bay, a distance of 190 miles from Cochrane.

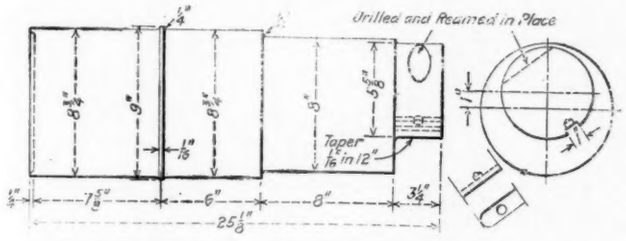


Chesapeake & Ohio Switcher for Heavy Service

Heavy Ten-Wheel Locomotives for Switching Service

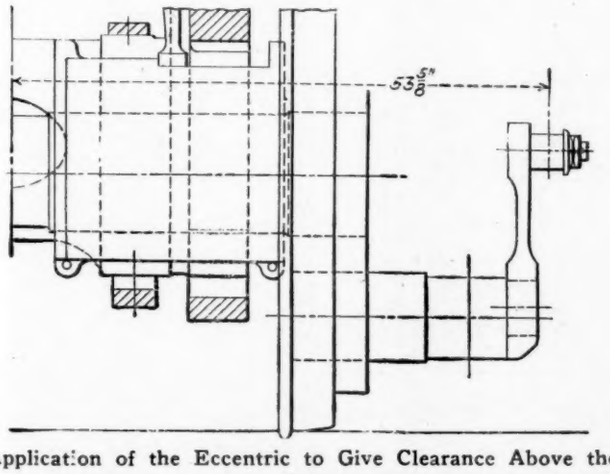
Switching Locomotives Having 63,000 lb. Tractive Effort Built for the Chesapeake & Ohio

THE DEMANDS made upon switching locomotives by the heavy tonnage trains of the present day have resulted in the building of some very heavy ten-wheel switching locomotives for the Chesapeake & Ohio. The tonnage of many trains has grown to such proportions that they are



Main Crank Pin with Offset Eccentric Boss

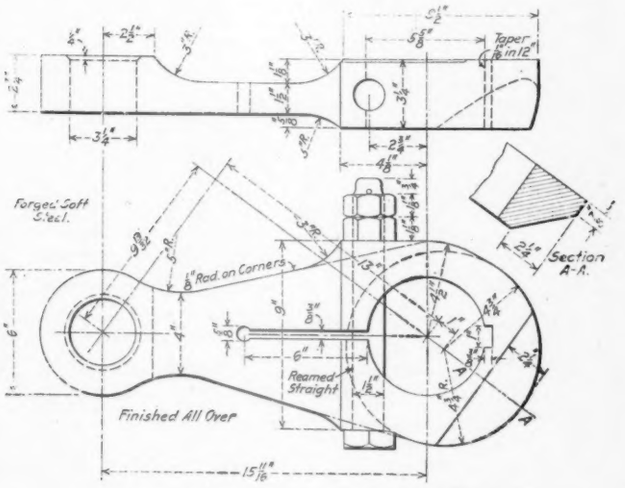
beyond the capacity of any locomotives used for switching, except the Mallet type locomotives. These ten-wheel switching locomotives are the largest and heaviest non-articulated



Application of the Eccentric to Give Clearance Above the Rail

switchers ever built. The total weight on drivers is 295,000 lb. and the tractive effort is 63,000 lb. They were designed by the mechanical department of the Chesapeake & Ohio with the co-operation of the American Locomotive Company, which built the locomotives at its Richmond works. Some very interesting and difficult problems were encountered in the design of these locomotives, but the results have been very satisfactory.

The driving wheels all have flanged tires 5¾ in. wide, and in order to keep the wheel base at a minimum are made as small in diameter as practicable. With 51-in. diameter wheels spaced as closely as possible, the total wheel base is

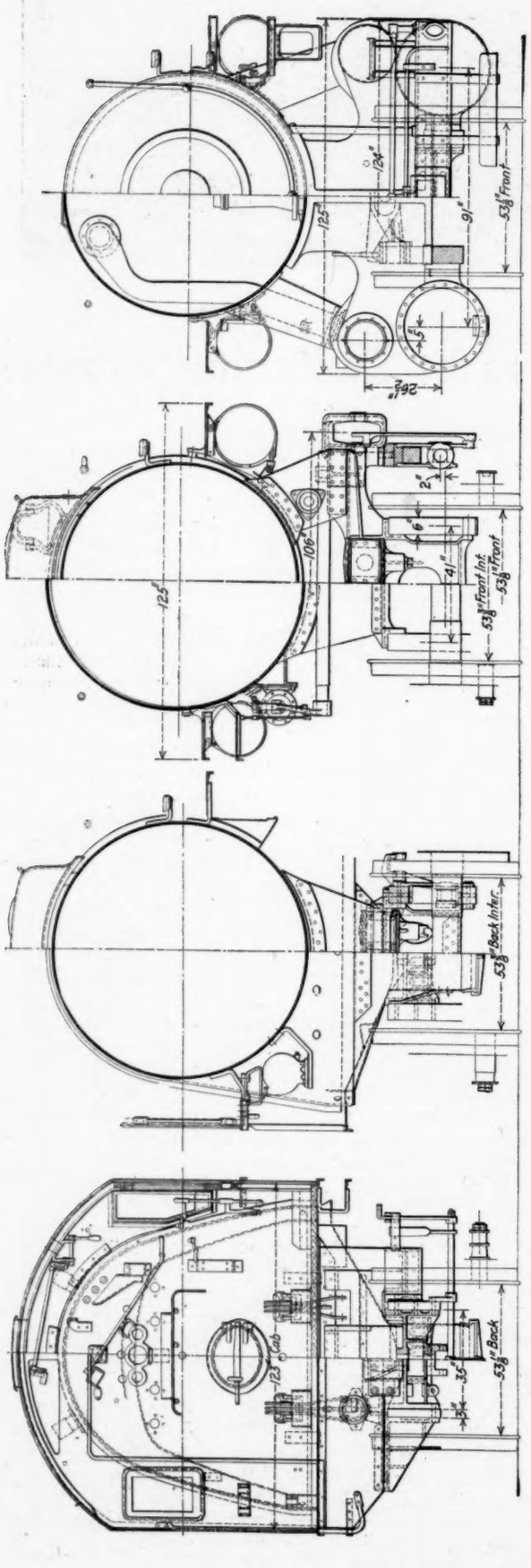


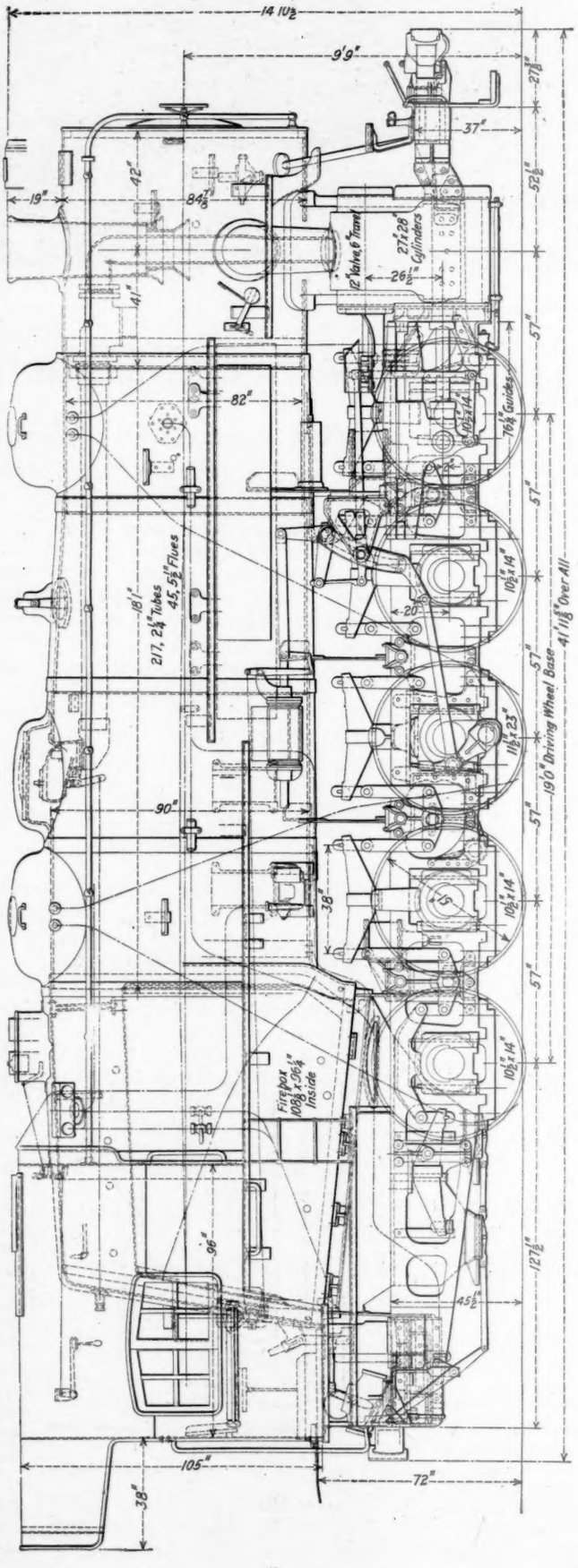
Eccentric Crank for C. & O. Switcher

only 19 ft., and these locomotives can pass over curves of 14 deg. without the use of lateral motion driving boxes.

The steam pressure is 185 lb. per sq. in. and the cylinders are 27 in. in diameter with a 28-in. stroke. The small driving wheels with this 28-in. stroke and the large crank pins necessary for an engine of this high power made the question of clearance of main rod straps and eccentric cranks a rather difficult problem. The hub of the eccentric crank was kept above the rails the required distance by making the main crank pin boss eccentric, as shown in the drawings.

The side rods are of a design differing from the usual arrangement. Instead of the usual rear knuckle joint connection the fourth crank pin is made with two journals, and the back crank pin is extended in a manner similar to the style

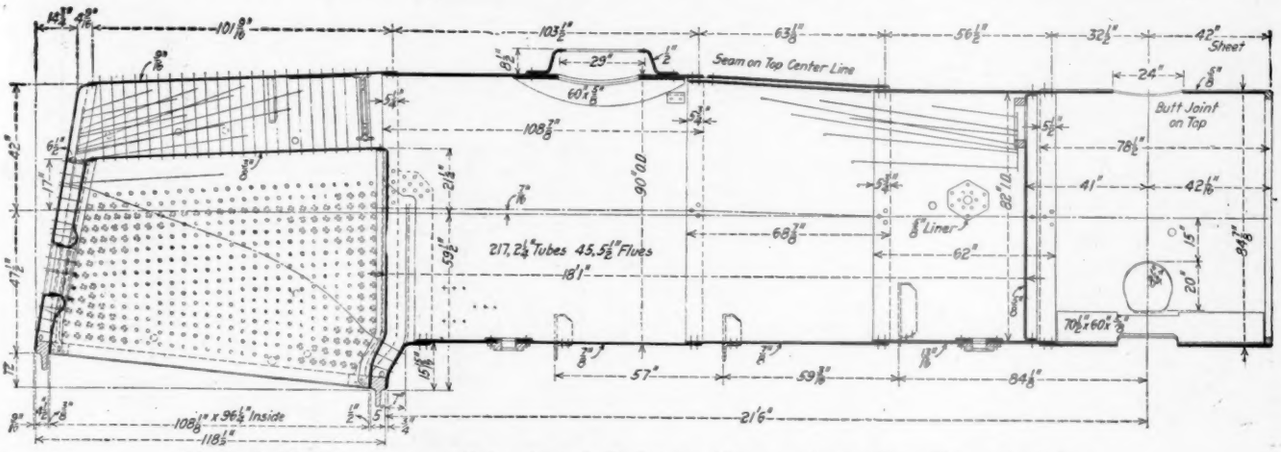




Elevations and Sections of the Chesapeake & Ohio Ten-Wheel Switcher

used on many American type eight-wheel locomotives. The back section rod is independent of the forward side rods and is on the outside, in line with the main rod. The guides and crosshead are of the Laird type, the crosshead shoe being solid bronze with very liberal bearing surfaces, designed to give long wear.

The total length of this locomotive from the front bumper course. The longitudinal seams are on the top center line, have inside and outside welt strips and are strongly riveted. The circumferential seams are lapped 5½ in. at the smoke box, with a double row of rivets; 5¾ in. at the two intermediate seams, with double rows of 1¼-in. rivets and 5¼-in. at the firebox with a double row of 1⅛-in. rivets. The boiler is equipped with a Schmidt superheater, having a

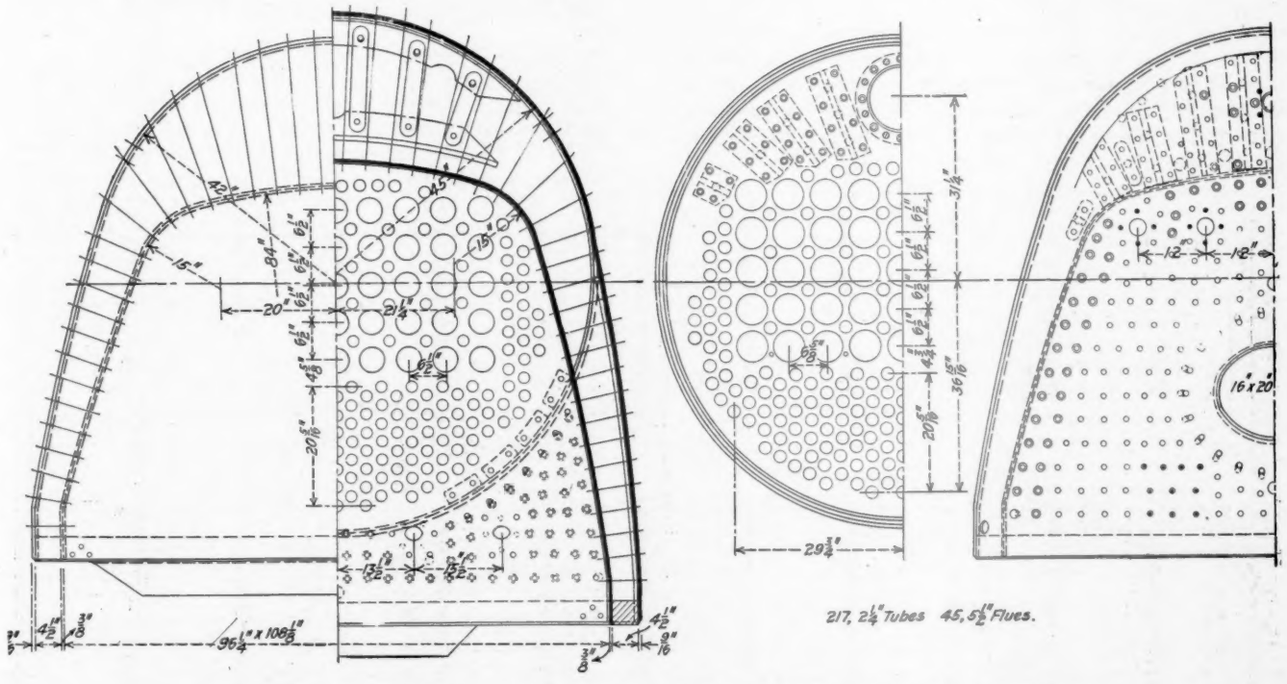


Extended Wagon Top, Radially Stayed, Boiler for Chesapeake & Ohio Heavy Switcher

to the tender end sill is 75 ft. 9¼ in., the overall height is 14 ft. 11¾ in. and the width over running boards 10 ft. 5 in. The lococomotive frames are 6 in. wide and have ample depth over the pedestals to provide the required strength to support the heavy weight of the locomotive. The journals

heating surface of 945 sq. ft. The firebox is 108⅛-in. long by 96¼ in. wide inside, has an average height of 72⅝ in. and a grate area of 72.2 sq. ft.

The tender tank is built unusually low and long and the side plates of the coal space are set in to permit an unob-



Cross Sections of Boiler for Chesapeake & Ohio Heavy Switching Locomotive

of the main driving axles are 11½ in. by 23 in. and the other four axles have journals 10½ in. by 14 in.

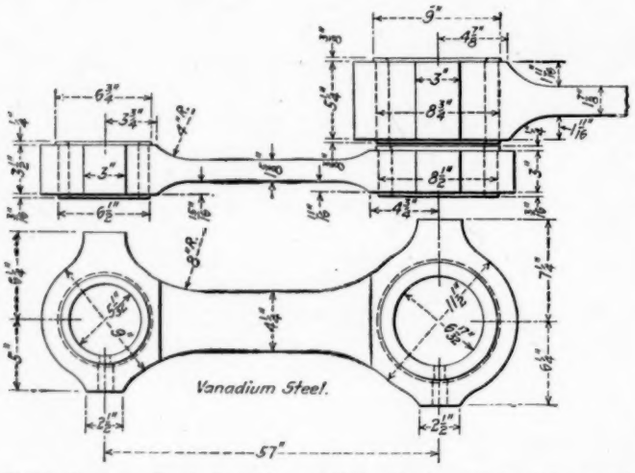
The cab fittings are arranged on the backhead in the most convenient location for the engineman and particular care has been taken to afford an unobstructed view in both directions from the cab.

The boiler is of the extended wagon top type with a wide firebox. It has an inside diameter of 88¼ in. at the dome

structed view of the rear. The tank is 32 ft. long by 10 ft. wide by 5 ft. high inside, and has a water capacity of 15,000 gallons. The coal space has a capacity of 15 tons. The tender frame is of cast steel, having side sills 10 in. deep and intermediate sills 13 in. deep. The vertical webs of these sills are 1-in. thick and are very strongly ribbed and webbed, making a most rigid frame that will withstand any stress that may be put upon it in heavy switching service.

The tender trucks are of the same design as those used under the tenders for the Chesapeake & Ohio Mallet type locomotives. The truck side frames are 6 in. wide and are of cast steel. The bolsters are also of cast steel and are supported by triple elliptic steel springs. The wheel base is 5 ft. 10 in., the wheels 33 in. in diameter and the journals 6 in. by 11 in.

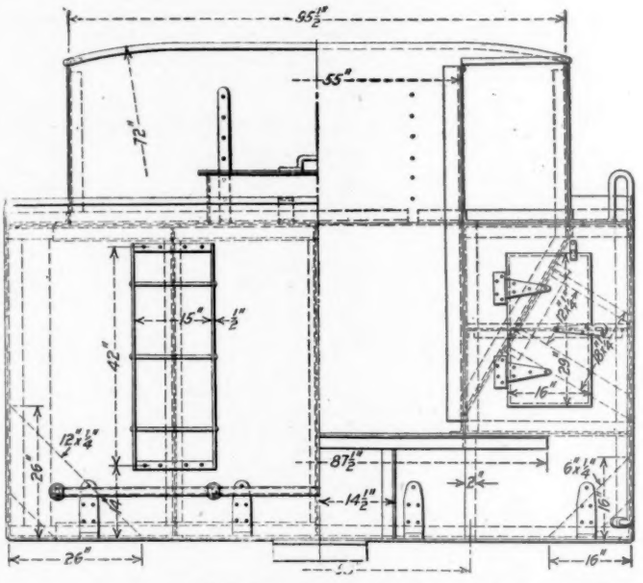
The specialties include the Cole long main driving boxes,



Back Section Rod Outside of Side Rods and in Line with Main Rod

Watters pneumatic sanders, Nathan lubricators and non-lifting injectors, Hancock combined stop and check valves and hose strainers, "Loco" incandescent headlight equipment, Consolidated safety valves, Franklin pneumatic grate shakers, Lewis power reverse gear, Economy radial buffer, Farlow-Westinghouse draft gear, Sharon tender and pilot couplers, Commonwealth cast steel pilot beam and tender frame, Hunt-Spiller gun iron cylinder and valve packing rings and steam chest bushings, Cambria Coffin process axles, Schmidt superheater and Westinghouse-American brakes with two 9½-in. pumps. The piston rods and crank pins, the frames and the main and side rods are of vanadium steel.

In the design and construction of these locomotives careful attention was given to the smallest detail so that the tractive effort might be a maximum without any unnecessary weight being added to the locomotive as a whole. The results obtained from them since they were placed in service in February, 1919, has been very satisfactory. They have not only handled the heavy trains easily but have proved to be as well adapted to lighter switching service as the medium-sized locomotives.

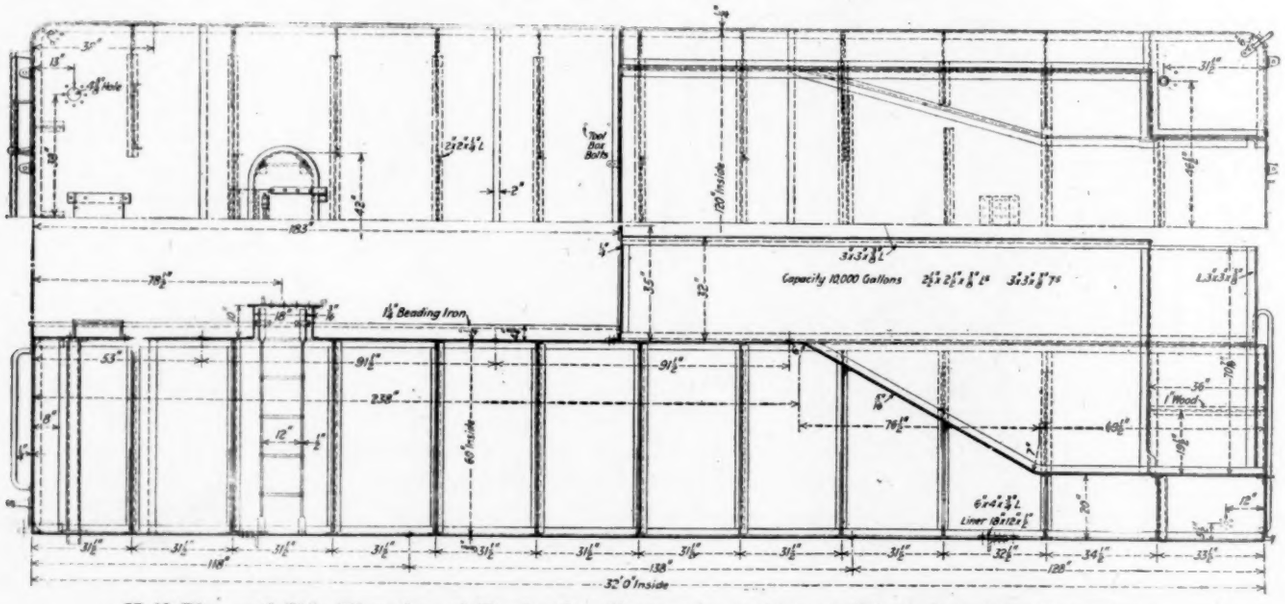


Section and End Elevation of Tender for C. & O. 10-Wheel Switcher

The principal weights, dimensions and ratios are as follows:

General Data

Gate	4 ft. 8½ in.
Service	Switching
Fuel	Soft coal
Tractive effort	63,000 lb.
Weight in working order	295,000 lb.
Weight on drivers	295,000 lb.



Half Plan and Side Elevation of Tender for Chesapeake & Ohio 10-Wheel Switching Locomotive

Weight of engine and tender in working order	478,100 lb.
Wheel base, driving	19 ft.
Wheel base, total	19 ft.
Wheel base, engine and tender	60 ft. 3¼ in.

Ratios

Weight on drivers ÷ tractive effort	4.68
Total weight ÷ tractive effort	4.68

Tractive effort × diam. drivers ÷ equivalent heating surface*	629
Equivalent heating surface* ÷ grate area	70.5
Weight on drivers ÷ equivalent heating surface*	57.4
Total weight ÷ equivalent heating surface*	57.4
Volume both cylinders	18.55 cu. ft.
Equivalent heating surface* ÷ vol. cylinders	277
Great area ÷ vol. cylinders	3.84
Cylinders	
Kind	Simple
Diameter and stroke	27 in. by 28 in.
Valves	
Kind	Piston
Diameter	12 in.
Greatest travel	6 in.
Wheels	
Driving, diameter over tires	51 in.
Driving journals, main, diameter and length	11½ in. by 23 in.
Driving journals, others, diameter and length	10½ in. by 14 in.
Boiler	
Style	Extended wagon top
Working pressure	185 lb. per sq. in.
Inside diameter of first ring	82 in.
Firebox, length and width	108⅛ in. by 96¼ in.
Tubes, number and outside diameter	217—2¼ in.
Flues, number and outside diameter	45—5½ in.
Tubes and flues, length	18 ft. 1 in.
Heating surface, tubes	2,300 sq. ft.
Heating surface flues	1,166 sq. ft.
Heating surface, firebox†	232 sq. ft.
Heating surface, total	3,698 sq. ft.
Superheater heating surface	935 sq. ft.
Equivalent heating surface*	5,100.5 sq. ft.
Grate area	72.3 sq. ft.
Tender	
Tank	8-wheel
Frame	Cast steel
Weight	183,100 lb.
Wheels, diameter	33 in.
Journals, diameter and length	6 in. by 11 in.
Water capacity	10,000 gal.
Coal capacity	15 tons

*Equivalent heating surface = total evaporative heating surface + 1.5 times the superheating surface.
†Includes arch tubes.

Labor Head Criticizes Railroad Administration

THAT THE RADICAL rather than the conservative element of organized labor has been favored by the government through the United States Railroad Administration is the charge made by Earl H. Morton, president of the Order of Railroad Station Agents, in a recent letter to Senator Warren G. Harding. As proof of his contention Mr. Morton said in part:

"When the railroads were taken over by the government former Director General McAdoo laid down the policy of the open door. When he issued General Order No. 8 he created the Lane Commission and permitted all classes of railroad employees, whether organized or unorganized, to appear before the commission through their representatives and state their grievances before their employers, who also had an opportunity to state their side of the case. After hearing both sides the commission had the authority to render a verdict in accordance with the testimony submitted. This seems to me a fair, common-sense way of bringing employer and employee together.

"Since the resignation of former Director General McAdoo there has been gradually brought about, through the domination of a certain group of organized labor, a decided change in the policy of the Railroad Administration which is detrimental to the interests of conservative union organizations, also to the unorganized employees. For an illustration: General Order No. 65 in Section B reads as follows: 'Grievances which occur on the effective date of any national agreement, and subsequent thereto, will be handled by the committees of the organizations signatory to such national agreement, for final reference to the appropriate railway board of adjustment, except on roads where other organizations of employees have an agreement with the management for the same class of employees, in which case grievances will be handlled under that agreement by the committees of the organization which holds the agreement, for final reference to the Director of Labor, as provided in Circular No. 3 of the Division of Labor.'

"To the experienced employee this means simply that the right to be represented by his chosen organization is not only denied him but only the organization signatory to a national agreement can handle his grievances. The rational, conservative employee may not care to affiliate with the radical element of organized labor, who are the only people who have been given the opportunity to draft these national agreements. This work was done by committees paid from the public treasury, and thus the government gave its sanction to the radical rather than the conservative element of labor."

In the same letter Mr. Morton, speaking for the conservative element of organized labor, approves the anti-strike clause in the Cummins bill as follows:

"Much has been said about the anti-strike clause in the Cummins bill and perhaps too little has been said about its good features. As president of the Order of Railroad Agents, I can see no great harm to the railroad employees as a result of the passage of this clause. The machinery established by this bill would result in making the working conditions and salaries of railroad men so satisfactory that they would have no cause to strike, while the general public would have the assurance of the uninterrupted transportation service."

Annual Report of Southwestern Region

EXTRAORDINARY TRANSPORTATION conditions, particularly in Texas, during the year 1919, due to the unprecedented oil development and the very unusual rainfall are given particular attention in the annual report for the year 1919 of B. F. Bush, regional director of the Southwestern region, to Walker D. Hines, director general of railroads.

"Transportation conditions in Texas during the year have presented extreme difficulties and have had the unremitting attention of the railroad officers," said Mr. Bush. "There were three extraordinary conditions local to the state of Texas. One was an oil development unprecedented in the history of Texas or any other state. Another was a rainfall of unprecedented volume throughout the year, largely damaging some crops, making it exceedingly difficult to care for others, making wagon roads almost impassable in many parts of the state, and last, but not least, having such a deleterious effect on the track structure as to make safe and economical train operation most difficult. Many of the lines of railroad in Texas are of light design and construction respecting subgrade, banks, ditches, ballast and rail, and it was not possible to find the means to provide the new capital for a substantial improvement in the track structure of these lines by the application of new and stronger materials. The third condition was the production of a wheat crop, principally in western Texas, at least three times the normal wheat crop of the state.

"All of these conditions presented in themselves the greatest difficulties to satisfactory railroad transportation, especially since they were supplemented by difficulties of a more general character.

"The oil development was principally upon the Texas & Pacific, the Missouri, Kansas & Texas, and the Wichita Falls & Northwestern. In every instance the development produced an unheard of amount of inbound and outbound freight and passenger traffic, for which existing facilities had never been designed and were consequently wholly inadequate. The provision of needed additional facilities called for large amounts of new capital. The railroad companies were not in position to furnish the money. The government was not in position to furnish the money because of the imminent early termination of federal control and of the lack of appropriations which could be devoted to the enlargement of the railroad facilities of the country. Never-

theless, substantial capital expenditures were made on these railroads in Texas on account of the extraordinary pressure to meet the local necessities. But, the carrying on of this work was greatly hampered by the continued rainy season. The unloading of cars in the oil regions was greatly delayed, first, because of the insufficiency, in a great many instances, of the consignees' facilities for unloading, and second, because the wagon roads were so nearly impassable as to make it exceedingly difficult to haul the material away from the cars. This added to a congestion which would have been extremely great in any event. The passenger travel and express travel were greatly increased and the more the effort was made to take care of the passenger travel, the greater was the interference with the handling of the necessary freight traffic. These difficulties were all the greater because almost without exception the oil development occurred on branch railroads or railroads of light construction which were not adapted to the movement of heavy locomotives or other heavy equipment.

"The extraordinary large crop of wheat was in a territory where no such crop had ever been obtained before, and where there were practically no facilities for local storage. The wheat had to move to a large extent for export via Galveston. The elevators at Galveston were speedily filled up, vessels were slow in coming to the port, the situation was further complicated by the Gulf storm, and a condition arose whereby the more the railroads attempted to furnish cars to load wheat the more congested the railroads became and the more cars were takn out of active service, by reason of the inability to rapidly get rid of the wheat at Galveston. By degrees this situation was improved through the diversion to Galveston of a large additional number of vessels, but meanwhile the farmers suffered great inconvenience and loss through their inability satisfactorily to care for their wheat, this being greatly accentuated by the unprecedented amount of rain.

"The entire situation as to car supply was further complicated by the general condition that for sometime prior to the beginning of federal control the railroad companies of the country had not as a whole bought enough new freight cars to make good the wearing out of existing equipment and to keep pace with the growth of the country. In the first year of federal control the number of freight cars obtainable was absolutely limited by the relatively small amount of material which could be taken from other pressing needs of the war and devoted to the construction of freight cars. During the second year of federal control no further orders for freight cars could be placed because the railroad companies could not furnish the money and no government appropriations were available therefor on account of the early approach of the end of federal control. At the same time the business in the fall months was up to the maximum that had ever been moved in the country before, and the loading per car was much less heavy than it was the year before under the stimulus of war necessities. All these elements combined to produce great scarcity of equipment. This was in part overcome by the unified control of equipment by the Railroad Administration but it was impossible to overcome it entirely. Yet there was, taking the country over, less car shortage than had occurred in several years prior to federal control. This condition operated to accentuate the difficulties incident to handling the unprecedented grain crop at the congested terminals where there was neither sufficient storage nor shipping to take care of the situation.

"A general resumption of tourist passenger traffic on the railroads of the southwest was indicated in the report. During the year passenger train service had been increased at the rate of 2,947,375 miles per annum, or 8,075 passenger train miles per day. Of this increase 5,965 passenger train miles per day represented service which had been discontinued during the war and which was restored, and 2,110 passenger train miles per day was new service established. The gradual reduction in the movement of troops permitted the establishment of necessary additional passenger service, the report said. From January 1 to November 15, 1919, according to the report, Southwestern region lines handled 1,253 troop trains. The report characterizes the passenger traffic for the period covered as "exceptionally large."

"During the first six months of the year there was a substantial reduction in freight traffic movement with an increase in cars on lines, the majority of which were surplus and stored for prospective loading. This condition continued up to and including July when traffic commenced to increase to such an extent as to reduce the car supply to a shortage, which has continued through the year."

According to the report, local freight loading on the lines in the Southwestern region showed an increase during the period from January 1 to November 15, 1919 over the same period of 1918 of 91,347 cars or 3.5 per cent. Up to December 1, 58,000 cars of wheat had been moved to primary markets in the region, an increase of 40 per cent over the same period of last year.

Regional Director Bush reported the creation of a "Freight Service Organization" which stationed competent traffic men at principal junction points to expedite freight movement.

"The practice of handling freight in train-lots of 20 or more cars" the report said, "was continued this year, and the commodities so handled consisted principally of oil, grain, ore, sulphur, molasses, government freight, fruits, vegetables, and other perishable commodities. This resulted in expediting transportation service and minimized the cost."

Commenting on the car supply during the year, the report said: "Upon signing of the armistice, surplus of equipment of all classes accumulated rapidly, due to decreased loading, and in consequence a large amount of equipment was delivered to this region for storage and prospective loading. With 110 per cent of equipment owned on the lines and a surplus of 28,000 cars on January 1, 1919 the accumulation continued until March 20 when a surplus of 71,000 cars was reported, at which time about 31,000 cars had been stored. On June 1, 1919 the region as a whole had 140 per cent of equipment on line.

"Arrangements were made early in the year to inspect, repair and set aside box cars for moving the wheat crop. On July 1 a total of 27,000 grain cars had been stored, or 20,000 cars more than the previous year."

The heavy movement of traffic, Director Bush reported, made additional locomotives necessary, and the southwestern region is now using 55 locomotives belonging to lines of other regions. "Heavy traffic, both passenger and freight," said the report, "and a shortage of locomotives on some lines has taxed power to the maximum during the present year. It was necessary to borrow engines from other regions to handle the business, and notwithstanding shops have been operated to their capacity, except when the forces were on strike, it has not been possible to greatly improve the general condition of locomotives over last year."

The report commented upon a "general shortage of all classes of labor during the entire year particularly in the maintenance and mechanical departments."

"Bridges, buildings and other structures are in good condition. The roadway has been properly maintained, although a large amount of work has been required and a considerable increased expense made necessary by the excessive rainfall throughout the Southwest not only in the spring of this year but particularly during the fall and winter months."

Director Bush reported that work is under way on the transformation from coal to oil burners of locomotives on the Missouri, Kansas & Texas of Texas, the Wichita Falls & Northwestern, the Texas & Pacific, the Trans-Mississippi Terminal and the Gulf Coast Lines.

The report also recorded progress in the work of preventing loss and damage freight claims, accident prevention, fuel conservation and fire prevention.

The Annual Report of the Division of Labor

W. S. Carter Urges Continuance of Bi-Partisan Boards of Adjustment After Termination of Federal Control

THE CONTINUATION of the railway boards of adjustment created by the Railroad Administration to handle controversies arising out of the application of wage orders and other disputes between the officials and employees of railroads is urged by W. S. Carter, director of the Division of Labor of the Railroad Administration, in his annual report for 1919 to the director general. These boards have no jurisdiction over the recommendation, issuance and interpretations of wage orders and in this respect, therefore, Mr. Carter's recommendation is in contrast with the labor provisions of the Esch bill passed by the House at the request of organized labor, which provides for boards of adjustment to have jurisdiction over wage matters. The boards provided for by the House bill would be bi-partisan without any umpire or neutral member and in this respect would be similar to the Railroad Administration boards. An abstract of Mr. Carter's report, which includes the reports of the boards of adjustment and also that of the Women's Service Section, published elsewhere is as follows:

In the report of the Division of Labor for 1918 the methods and purposes of creating this division were explained. The work of this division has been developed to the extent that at the present time the number of officers and employees is 97. This includes the central offices of the division, Railway Boards of Adjustment, and the Women's Service Section. Its principal purpose has been for the director of the division to act in an advisory capacity to the director general, to adjust controversies between the railroads and their employees, and to endeavor to create harmonious relations between the officers and employees on all railroads. The executive authority of the director of the division is limited to decisions mutually agreed upon by the Division of Labor and Division of Operation of the Railroad Administration. Because of the volume of business thus transacted the directors of each of these divisions have appointed assistant directors who devote much of their time to investigations, hearings, and conferences in formulating decisions in labor matters. The pages following indicate the general character of work performed by the Division of Labor during the year 1919.

The Division of Labor received and assembled all necessary evidence, including necessary approval of the chief operating officer of the railroad and the chief executive officer of the organization concerned, and filed with proper Railway Board of Adjustment in accordance with provisions of General Orders, Nos. 13, 29, and 53, during period January 1 to December 15, 1919, a total of 2,658 cases. Of these, 1,314 were referred to Railway Board of Adjustment No. 1, 875 to Railway Board of Adjustment No. 2, and 469 to Railway Board of Adjustment No. 3.

This division also received, assembled necessary evidence in accordance with Circular No. 3 of the Division of Labor and referred to the three assistant directors of the Division of Labor a large number of submissions affecting employees not having representation on Railway Boards of Adjustment, which cases were later given due consideration and decisions rendered by the Division of Labor in accordance with Circular No. 3.

In addition to receiving and forwarding to the Board of Railroad Wages and Working Conditions all requests for interpretations of wage orders and receiving and forwarding to Railway Boards of Adjustment Nos. 1, 2 and 3 all submissions coming within their jurisdiction, this department has maintained permanent files for the Division of Labor on all such cases, and has attached the decisions and rulings in each case as issued.

This preparatory work is of such large volume that it has required the assignment of a special assistant in charge of a section of the Division of Labor.

Methods of Adjustment of Controversies Between the Railroads and Their Employees

As stated elsewhere, a memorandum of understanding has been reached with the 14 organizations of railroad employees, representing a vast majority of all employees, to refer all disputes that are not adjusted on the individual railroads to Railway Boards of Adjustment. Under this understanding most of the controversies have been decided in accordance with the provisions of the general orders creating such boards.

There remained, however, for practically all classes of employees many railroads on which no agreements existed, and in order to provide means by which such controversies could be disposed of Circular No. 3 was issued with the approval of the director general.

Under the provisions of Circular No. 3 a large number of investigations have been made, hearings held and correspondence conducted, in order to reach an equitable decision.

In handling this character of work it has been specialized to the extent that certain of the assistant directors have been assigned supervision over the cases coming from certain of the organizations of the railway employees and much of the time of these assistant directors has been devoted to this work. The policy of the Railroad Administration is that where matters of this character are referred directly to the Division of Labor for adjustment, representatives of the Division of Labor and the Division of Operation co-operate to the extent that decisions rendered have the approval of both divisions. (The report gives a list of decisions rendered by the Division of Labor in this manner, without reference to Railway Boards of Adjustment.)

Work of Field Representatives

It was found advisable early in federal control of the railroads to select a corps of field representatives, who could be detailed to go to the locality in which a controversy arose and to advise all concerned as to the proper methods of adjusting same. Investigations of labor matters are necessary in many cases and these field representatives have been assigned to that work. In the selection of persons to perform these duties effort has been made to secure the services of those who have had large experience in similar matters, with the result that their work has been highly gratifying. The services of these men are utilized in the following manner:

1. Investigation of complaints of railroad and express employees which have been handled by correspondence and upon which further information is required to enable us to determine the exact conditions. These complaints are in connection with conditions of employment, discharge from service, rates of pay, application of wage orders, etc.

2. Arranging for conferences between committees representing employees and officials of the railroads for the adjustment of grievances or the preparation of joint statements submitting such grievances to the administration for decision.

3. Advising employees on strike or threatening strike as to the manner in which their grievances should be presented

to the administration for attention, and of the attitude of the Railroad Administration in regard to illegal strikes or other suspension of work to force the granting of certain demands. These representatives have been particularly successful in this branch of the work, having obtained the return to work of the striking employees or averted suspension on practically every occasion upon which they have been instructed to participate.

The personal contact of these representatives with employees and officials has been most effective in conveying a proper understanding of the desires of the administration in regard to the handling of labor matters, and their services have been appreciated by both the representatives of the employees and the officials, and they take a great deal of pride in the work they have accomplished.

National Agreements with Railway Employees' Organizations

During the year 1919, up to December 31, national agreements were entered into by the director general with the Railway Employees' Department of the American Federation of Labor for employees engaged in the mechanical trades, their apprentices, helpers, etc.

A national agreement was also entered into in the same manner with the Brotherhood of Maintenance of Way Employees and Railway Shop Laborers.

A request has been filed with the director general by the Brotherhood of Railway Clerks for a standard set of working rules for employees coming within the jurisdiction of that organization. This request is now under consideration and will be disposed of as promptly as possible. (This agreement has since been signed.)

A request has been filed by the Brotherhood of Railroad Signalmen for a standard set of working rules, which request is being considered. (This agreement has since been signed.)

The Brotherhood of Stationary Firemen and Oilers has also submitted a request for a standard set of working rules, which will be disposed of as promptly as practicable.

Railway Boards of Adjustment

Railway Boards of Adjustment, Nos. 1, 2 and 3, have been delegated authority to decide controversies arising between the officials of the railroads and the organizations of railway employees under agreements in effect at the time that such controversies arise. These boards were created through memoranda of understanding entered into by the regional directors and the chief executives of the organizations of railway employees.

It will be noted that Railway Boards of Adjustment have no jurisdiction over the recommendation, issuance, and interpretaions of wage orders, their duties being confined to decisions of controversies arising out of the application of wage orders and to decisions on all other disputes between the officials and employees on railroads working under agreements.

The work of these boards demonstrates not only the advisability of the creation of such boards but the necessity of their continuance, either under federal control of railroads or thereafter. The fact that boards are "bipartisan" without any "umpire" or "neutral member," and all of which members are experts in railroad agreement matters, have led both officials and employees to have confidence not only in the fairness of decisions reached but as to the technical ability of the members of the boards to pass intelligently upon all controversies submitted for decision.

Where controversies, sometimes of the simplest character, formerly resulted in negotiations extending over months or years, resulting in strained relations bewteen the officials and the employees, such controversies, when not promptly disposed of by the officials and employees are referred to boards of adjustment for final decision without any personal feelings in the matter.

Reference to the reports of these boards indicates the enormous amount of business submitted for final disposition.

The railroads are represented by officials, or former officials, especially delegated to carry on the work of the boards, and the employees are represented by officers of their own organizations.

The successful operation of these boards of adjustment is not only due to the plans and methods of their institution, but to the mental attitude of those selected to represent the diverse interests. It has been the theory that every person accepting a position on these boards realizes that he is no longer a partisan but is expected to assume a judicial attitude in each and every case upon which he is called to make decision.

The following is a report of Railway Board of Adjustment No. 1 covering the period from January 1, 1919, to January 1, 1920:

In submitting this report the necessity of brevity is fully appreciated. However, the report would be incomplete were attention not directed to the latter part of the year 1918, when the work of the board was seriously handicapped by the influenza epidemic, which halted many hearings, and as a consequence the cases awaiting the consideration of the board January 1, 1919, were substantially augmented.

The cases from the Oregon-Washington Railroad & Navigation Co. (129 in number) being the first on the docket, the entire month of January was devoted to the controversies from this line.

The month of March and part of April were entirely consumed by the submission of 226 cases from the Denver & Rio Grande, which did not include 14 cases submitted later and decided in the month of August, nor 4 other cases that had been decided by the board prior to this time. The month of April was, to a great extent, spent in discussing the question of "payment for overtime at the rate of time and one-half" in accordance with special direction of the director general.

An adjournment of the board during the month of May was necessitated by triennial conventions of two organizations. As a result of these extraordinary conditions there was an accumulation of 511 cases June 1, 1919. However, the board proceeded to hold night sessions and work many Sundays, which increased the output of decisions to a general average since June 1 of 108 per month without an increase of operating cost.

Since the board was organized there have been submitted to it, under General Order No. 13, 1,657 cases and under General Order No. 27, 84 cases. The board has rendered 1,497 decisions under General Order No. 13 and 79 decisions under General Order No. 27, making a grand total of 1,576 cases decided to date. In addition thereto, the board has been requested to act as a board of arbitration on four cases, all of which have been passed on.

The total number of cases on hand at the close of the year is only 166. The board should be able to dispose of a majority of these cases in January and currently each month thereafter.

The following is a report of Railway Board of Adjustment No. 2, covering the period from January 1, 1919, to December 31, 1919:

From January 1 to July 1 E. F. Potter was chairman of the board and George W. Pring vice chairman. At the first meeting held in July, in accordance with the rules governing the board, George W. Pring succeeded Mr. Potter as chairman, and R. J. Turnbull was elected vice chairman.

The board has been in session 252 days since January 1, 1919, up to December 31, 1919, showing an average of four

and one-half controversies passed upon at each of its meetings.

There have been six hearings held during the past year on controversies presented by the railroads and organizations, and while there have been other requests for hearings, the board has felt that the information contained in the controversies and additional information obtained through correspondence with the railroad and organization officials was sufficient to enable it to act without incurring the additional expense and time which would be needed to carry on a hearing. This action was in line with the instructions laid down for the board in General Order No. 29.

REPORT ON BOARD OF ADJUSTMENT NO. 2

This Board had on hand as of January 1, 1919, unfinished controversies	32
From January 1 to December 31, cases received	1,217
Total	1,249
Decisions rendered on controversies	1,141
Controversies returned to the Division of Labor for transmission to Railway Board of Adjustment No. 3, as the controversies did not come under the jurisdiction of this Board	20
Cases canceled, due to contending parties arriving at settlement themselves	6
Cases canceled, due to improper rendering of statements, and on request of both parties to the controversy	3
Controversies returned account dispute not being under jurisdiction of any Board of Adjustment	1
Controversies returned to the Division of Labor for adjustment	4
Controversies returned account duplication	2
Total	1,177
Leaving controversies on hand	72

The following is a report of Railway Board of Adjustment No. 3, covering the period from January 1, 1919, to December 31, 1919:

DISPOSITION OF REGULAR DOCKETS

Decisions rendered—		
Clerks	73	
Maintenance of way employees	25	
Switchmen	2	
Telegraphers	308	
Board of Adjustment No. 2, concurred in	3	
		411
Returned to Director Division of Labor—		
Clerks	1	
Telegraphers	32	
		33
Returned to Board of Adjustment No. 2, no jurisdiction		1

DISPOSITION OF SPECIAL DOCKETS

Decisions recommended—		
Clerks	171	
Maintenance of way employees	41	
Telegraphers	3	
Board of Adjustment No. 2, concurred in	4	
		219
Returned to Director Division of Labor—		
Clerks	12	
Maintenance of way employees	1	
Switchmen	1	
		14
Referred to Railway Board of Adjustment No. 2—		
Maintenance of way employees		2

REGULAR DOCKETS NOW BEFORE THE BOARD

Clerks	7	
Maintenance of way employees	4	
Telegraphers	22	
Switchmen	1	
		34

SPECIAL DOCKETS NOW BEFORE THE BOARD

Clerks	28	
Maintenance of way employees	3	
		31

Strikes of Railway Employees During 1919

During the year 1919 a considerable number of minor strikes occurred, practically all of which were not authorized by the organizations of which the employees were members. A major proportion of these strikes were adjusted through the initiative of the Division of Labor. In some instances the representatives of this division used their good offices to bring about a final adjustment, but in other instances the activities of the representatives of the division ceased when the strikers returned to work and the original controversy was referred by mutual consent back to the officials and the employees of the various railroads to adjust.

In only one instances—that of the clerks' strike on the Nashville, Chattanooga & St. Louis Railroad — was the entire railroad involved, and this strike was entered into by the local representatives of the clerks' organization and without proper authorization of the executive officer of the Brotherhood of Railway Clerks; therefore it may properly be classed as an illegal strike. Practically all of the other strikes, except that of train service employees, principally in the vicinity of Los Angeles, were confined to terminals or local offices, and with but slight effort the men were induced to return to work when the proper method of adjusting their grievance was explained to them.

It is believed that a vast majority of these unauthorized strikes arose out of the fact that the employees at these local points did not fully understand that a proper tribunal had been created by the Railroad Administration, to which all controversies should be referred, and that equitable decisions would be reached by such tribunal.

While a large number of water-front employees are on the payroll of some railroad under federal control, controversies arising among such employees since the beginning of the world war and previous to federal control were usually adjusted through local harbor commissions, and the controversies usually affected not only the railroad employees but the employees in other industries at the same port. This difference in adjusting controversies for this class of employees made it necessary to continue, so far as possible, these local wage boards or commissions, with the result that such controversies were handled by local representatives of the Division of Operation instead of by the Division of Labor.

Public Welfare Demands Efficient Transportation

By Edgar E. Clark

Member of Interstate Commerce Commission

I AM ONE OF THOSE who are glad that private ownership and operation (of the railroads) under government regulation are to be resumed. I should regard government ownership and operation of our railroads as unfortunate and as fraught with danger under our form of government.

With the termination of the present federal control, private ownership and operation will enter upon its last trial in this country. If it fails, government ownership will inevitably follow. If it fails it will in large part be due to the fact that the public and the patrons of the roads withhold the assistance that they can and should accord.

One of the biggest of our problems and one that calls for thought and action on the highest and biggest plane is the railroad problem. We have many men of broad vision and far-reaching imagination, but it is neither derogatory of them nor extravagant to say that none of them had the conception of the resources of our country and the possibilities of production therein that, in the light of the accomplishments of the past five years, he now has.

I have said that the railroad problem is one of the biggest of our problems. Some say it is our most intricate problem, and some say that it is so intricate as to be hopeless. I concede, of course, that the problem is full of intricacies but, looking at it broadly, it seems to me that there are certain features that can be easily comprehended, and that, when comprehended aright, solve the big problem and relegate the intricacies largely to the category of details which may be entrusted to those who are charged with administration, supervision, and regulation.

As transportation is the very life blood of national safety,

*From an address before the Philadelphia Traffic Club, Philadelphia, Pa., on January 19, 1920.

of economic growth, of industrial and agricultural development, and of commercial success at home and in the markets of the world, I start with the proposition that we must have transportation agencies that are separately and in the aggregate as big and efficient as present conditions plus the expansion and growth of the immediate future demand.

Our railroads, admittedly the best and most efficient in the world, are not adequate or equal to that demand.

Inasmuch as we must have transportation agencies that are sufficient and efficient, it follows that if they are not, or can not be, provided under private ownership, they must be provided by the government.

Private capital and enterprise will not provide the transportation agencies we need and must have, unless private capital invested therein can find a reasonable reward.

The interest on capital necessary to provide transportation agencies, as well as the cost of maintaining and operating them, must be paid by the users of those agencies, or in whole or in part from the public treasury. It is, therefore, in the public interest, as well as to the interest of those who pay transportation tolls, that our transportation agencies shall furnish efficient service at the lowest cost commensurate with that service and a fair reward to those who provide it.

Inasmuch as the public must pay for the capital invested in transportation facilities, the public is interested in having those facilities employed in the most effective and economical way. It has a right to demand that the carriers, to the extent of their ability, shall develop and maintain that kind of use of the facilities. It has also the duty to assist in that development and maintenance by arranging its demands for and use of the facilities with a recognition of the rights of the carriers, the public, and others who wish to secure transportation.

The interest upon the purchase price of a freight car works while the freight car lies idle. If the carriers were to have tracks, terminals and equipment sufficient to meet at any time the maximum demand that might be made upon them, it is certain that large portions of those facilities would lie idle a substantial part of each year and often for the major part of each year or for several consecutive years. The interest on the investment and depreciation of the facilities, nevertheless, would accrue, day by day and year by year, with no holidays or vacations, and with no regard for the 8-hour day.

It behooves us, then, to devise and carry out plans that will provide the needed transportation with the least investment and the highest efficiency in the use of the facilties.

During the summer months of each year, our railroads have thousands of idle coal cars and hundreds of idle locomotives. The operators of coal mines are unable to market the coal that they could mine and must close down a large part of the time. Their employes are thrown into enforced idleness, with all of its attendant evils, and the organizations necessary to proper operation of the mines become seriously impaired. With the approach of cold weather comes a feverish demand for coal and this is shortly and generally followed by a car shortage. All recollection of the idleness among miners and of coal cars during the summer fades away and manufacturers, public utilities, domestic users and state institutions call loudly for cars and more cars. Not infrequently great inconvenience, loss, extra expense and suffering result.

Why is it not logical to avoid this by providing a much greater part of the winter's needs in the summer months? The railroads can transport coal at less cost in the summer than in cold weather and have in the summer an abundance of cars and power. They can, therefore, afford to haul coal at a lower rate in the summer. It is not unlikely that the coal operator can produce coal more cheaply in warm weather. At any event it is to his interest to keep his mine in operation as regularly as possible and to thus maintain his organization. It is clearly in the interest of the general good to keep the men who mine the coal more regularly employed. Why, then, should not the coal producer, and the coal dealer who can obviously handle the coal more cheaply in warm weather, sell coal at a lower price during the summer months?

If the coal dealer sells at a lower price and the railroad transports at a lower rate from say April 1 to September 15 each year, why should the consumer not be glad to take advantage of that opportunity to provide a substantial part of his winter's supply during that period? The reduction in price and freight would largely, at least, compensate him for the investment and the extra expense of providing storage, and he would avoid the risk, trouble, anxiety and annoyance of shortage or impending shortage in the winter. The railroads, the operators, the dealers and the consumers would have made a large contribution to the general welfare and none of them would have made a serious or undue sacrifice. If this plan could be fairly tried for five years I believe that it would be a success and that no one would wish to abandon it.

The statement that bituminous coal can not safely be stored for a few months is effectively answered, and disproved, by pointing to the fact that millions of tons of it are transported each summer via the Great Lakes and distributed from enormous storage docks at west bank Lake Michigan ports and at the head of the lakes.

A constantly and rapidly increasing part of the traffic of our country demands the use of refrigerator cars. The crops upon which important sections rely must be moved in refrigerators and must move within a few weeks. Why should we not have, under a common ownership, administered by a joint or common agency, a mobile supply of refrigerator cars that would insure an adequate supply at the various seasons of the year to the several sections where they are needed, and that could thus be employed practically all of the time?

I repeat, gentlemen, that the country's walfare demands adequate and efficient transportation. The public must, and I believe is willing to, pay reasonably for that kind of service. In many particulars the railroad is largely at the mercy of those who employ it. In other particulars the shippers are largely at the mercy of the railroads. The railroads and their patrons have interests that are in many ways in common. Disregard of this fact and action or expression based on pure selfishness have done much to create and promote misunderstanding and friction, both of which could be avoided if each would have in mind the rights and interests of the other and endeavor to promote and foster their common interests. The railroad must have the good will of the public that it serves if it is to attain the highest measure of success. The best way to secure and hold that good will is to deal frankly and openly with the public, taking it into confidence, as it were, and appeal to its sense of reason and fair play. There must be less of long-range firing back and forth and more of conferences around the peace table. The dark days of war have shown us a splendid spirit on part of the shippers generally. They responded cheerfully to requests that they load cars to capacity, that they promptly load and unload cars used by them and that they accept delivery of freight at places other than, and less convenient to them, than the usual places. It is true that we were all spurred on then by the determination to win the war and a realization of the commanding part our railroads must play in that effort.

I accord full credit to each and everyone who contributed in personal service, money, effort or patriotic words and thoughts to the winning of the war and the saving of the institutions upon which our government is founded and which are so dear to all true Americans. But if we can unite our wills and our determination, and marshal our best

thoughts and efforts, to save the country in time of war, why can we not likewise unite our wills and marshal our efforts to save the country in time of peace, whether the danger be from insidious teachings of enmity to government, or from evil economic or industrial influences that, because of lethargy, indolence or indifference on our part, cause irreparable rust and decay?

Gentlemen, I enter my subscription to the fund of common good from earnest and helpful co-operative effort, and I solicit your contributions.

Report of the Central Coal Committee

STEPS TAKEN BY THE GOVERNMENT to meet the coal shortage arising from the recent coal strike and the results obtained are outlined in the report of H. B. Spencer, chairman of the Central Coal Committee of the Railroad Administration, to Director General Hines. The Central Coal Committee had full charge of the distribution of bituminous coal during the strike situation; by order of United States Fuel Administrator Harry A. Garfield it was vested with the full powers of the Fuel Administration under the Lever food and fuel control act and executive orders of the President for the control and distribution of coal.

In giving out the report of the committee, Director General Hines said:

"I wish to express my appreciation of the faithful work which was done by the Central Coal Committee, the regional coal committees and the various local coal committees. Suddenly confronted with an unprecedented and nation-wide fuel problem growing out of the coal strike, these gentlemen devoted themselves unreservedly to the task of ascertaining the needs of the various parts of the country, devising ways to meet those needs, handling the infinity of complex questions that speedily arose and expediting methods for securing payment for the coal produced. They had the hearty co-operation of the United States Fuel Administration, of the United States Shipping Board and of the Division of Operation of the Railroad Administration, of other officers of the Railroad Administration and of the regional organizations as well as the local railroad organizations in the transportation of the extraordinary amounts of coal which had to be carried from Pennsylvania and West Virginia to new and distant destinations. Considering the great possibilities for public alarm and public inconvenience and suffering growing out of the most destructive strike the country had ever known, I feel that the results achieved by these coal committees in conjunction with the railroad operating officers constitute a public service of great importance."

Summarizing the results of the committee's work during the strike period, the report said:

"The available coal was so distributed during the period of the strike that the emergency needs of all essential consumers were amply provided for. In the Central and Southwestern regions and the western part of the Northwestern region, where consumers' stocks were very small at the beginning of the strike, difficulties were experienced in getting coal to them, but these difficulties were overcome, and while some non-essential industries in these particular territories were forced to close, some partially and some entirely, during the latter part of the strike period, there was no general suspension of manufacturing and no actual suffering for the want of fuel.

"In the eastern part of the country, where consumers' stocks were generally larger at the beginning of the strike, the shortage was not felt so soon, and it was not until nearly the close of the strike period that any industries in this section were forced to close down, and then only in isolated cases.

"Adequate publicity was given to the arrangements made by the Railroad Administration to provide coal for the needs of the essential consumers, and all of the railroads as well as the various coal committees received and acted on applications promptly."

Previous to the strike, the report said, the railroads had been ordered to accumulate a 30-day supply of coal, either by purchase or by holding commercial coal en route. On October 31 the director general ordered all railroads under federal control to hold subject to his orders all bituminous and lignite coal then on wheels or thereafter to be loaded. Concurrently with these orders, orders were issued vesting the Central Coal Committee with authority for coal distribution, creating regional coal committees representing the Railroad Administration and the Fuel Administration jointly in each railroad region, and re-establishing the priority list for coal distribution which had been fixed by the Fuel Administration during the war.

Discussing the coal supply available for distribution during the strike period, the report said: "There was available for distribution by the Fuel Administration through the agency of the Railroad Administration, including the entire supply of railroad coal both on cars and in storage and current mine production during the period November 1 to December 13, approximately 46,239,550 tons of coal. Of this quantity 24,292,950 tons were loaded on cars at the mines during this period, equivalent to 36 per cent of the estimated normal loading during the same length of time. The daily loading varied from a minimum of 17 per cent of normal to a maximum of 45 per cent. By far the larger part of the production was secured from the non-union fields of the Pocahontas, Allegheny and Southern regions.

"In the total of approximately 21,946,000 tons of coal on hand and available for distribution on November 1, the railroads had 10,946,585 tons of coal which belonged to them, representing approximately 26 days' supply based on their normal consumption."

The railroad fuel supply on hand varied from 71 days' supply in the New England region to 6 days' supply in the Pocahontas region.

"By a prompt survey made in anticipation of the strike," the report continued, "it was found that the number of days' railroad supply on hand in various parts of the country reflected with a considerable degree of accuracy the situation of other consumers in the same territory. The territory in the northwest, supplied with coal from upper lake docks, was assured of its winter supply, as its dock storage program was complete before the close of lake navigation.

"The total coal in possession of the railroads November 1, including commercial and railroad fuel, represented approximately two weeks' supply for all consumers in the country. The production during the strike period was equivalent only to the requirements of the first five classes on the fuel administrator's priority list, leaving no coal available out of current production to supply industries whose operations could not be classed as essential for the immediate needs of this country.

"Throughout the strike there was practically no production in the large producing field known as the central competitive district, including western Pennsylvania, Ohio, Indiana and Illinois. Consumers in that part of the country having relied on their proximity to the mines insuring their regular supply, had generally very small reserve stocks, which in many instances were soon exhausted. A similar situation existed in the middle west, particularly in Iowa, Nebraska, Missouri, Kansas and Oklahoma.

"The problem presented to the coal committees was therefore to secure the most equitable distribution in all sections of the country of the current production among essential consumers, as their stocks were depleted, conserving to the great-

est possible extent the reserve supply in possession of the railroads at the beginning of the strike.

"The transportation west of the large quantity of coal produced in the Pocahontas region and the eastern mining districts of the Allegheny region, the greater part of which would normally have been used in the east, involved considerable realinement of transportation, as existing railroad facilities were not designed for a westbound movement of this magnitude. On December 15 the reserve supply in possession of the railroads had been reduced to 10,692,400 tons—only about one week's supply for all consumers in the country.

"With reasonably accurate knowledge as to the stocks in each region and the current production, it was possible to allocate the coal available so that the emergency requirements of all consumers except manufacturers of non-essentials were provided for."

The report described the movement of large quantities of coal from the Pocahontas and Allegheny regions to Memphis, St. Louis, Chicago and points farther west, which developed until, by the termination of the strike, approximately 4,000 cars of coal per day, about 40 per cent of the total output of the Pocahontas and Allegheny regions, were being moved in this way from extreme east to extreme west. Ohio and Indiana were also supplied from the Allegheny and Pocahontas regions by rail, the movement reaching a total of 1,340 cars per day. The large stocks on hand in New England permitted the limitation of shipments to New England to the movement through Pocahontas and Allegheny district tidewater ports.

The Southwestern region was supplied with 15,097 cars from the Pocahontas region by way of Memphis and St. Louis during the strike period. A shortage of bunker coal at Gulf ports and the need for railroad fuel there led to the shipment of Pocahontas coal by tidewater from Hampton Roads to Galveston, for which movement the Shipping Board furnished tonnage.

The Central Western region requisitioned 21,076 cars of eastern coal during the strike period, and the Northwestern region received during the emergency 22,413 cars of eastern coal. Coal stocks in the upper lake docks, the report said, were confined practically to the normal lake dock consumers. Canada, according to the report, was supplied with 150 cars of eastern coal a day, which was distributed by the Canadian fuel administrator.

Discussing the conservation measures adopted and the restrictions placed on coal deliveries, the report said:

"The actual emergency needs of all consumers of bituminous coal were supplied as long as the available supply in the various sections of the country permitted. As the reserve supply in the hands of the railroads was reduced and the need in the respective regions increased, the regional committees, working with the state, county, and city officials and with business and other similar organizations in the various communities, placed such restrictions on the furnishing of coal by the railroads to consumers not in the essential classes as was necessary to assure an adequate supply for consumers in the first five classes on the fuel administrator's priority list for as long a time as practicable. General restrictions placed in accordance with instructions issued by the Central Coal Committee were universally and cheerfully complied with.

"The tidewater export embargo," the report said, "was and is still being maintained and will be until the needs of consumers in this country have been properly safeguarded.

"While coal was moved expeditiously to all points, there was nevertheless an unavoidable delay in getting it to the ultimate consumer, which resulted in apprehension on the part of the shipper that notices would be received too late for them to render bills to the divertee and secure payment within the same period that was ordinarily their trade custom. There is every indication that the operators were promptly paid and those whose financial needs were acute received special consideration, in many cases by the railroads taking coal from their mines as it was produced and paying for it instantly.

"The Railroad Administration also endeavored in every way that could be thought of to work out a plan by which the shipper might receive payment for his coal when it was shipped, and to extend or help his credit so as to enable him to borrow money on his coal which was held or diverted. Insuperable obstacles were encountered, and there was no other course than to expedite by every means at command the bringing of the shipper into communication with the divertee so that his invoice might be put promptly into the hands of the party who must pay it."

Orders of the Regional Directors

CONSERVATION OF GRAIN CARS.—The Northwestern regional director, file 20-1-374, calls for particular attention to be given to increasing the supply of cars for grain loading, especially corn from country stations and grain from terminal markets where the movement is not restricted by embargoes. Particular attention should be given to localities where, because of lack of storage or the bad condition of corn, the emergency is more acute. Positive instructions should be issued that will insure that cars suitable for grain are not loaded away from grain territory.

Cars for Fertilizer.—Freight Car Distribution Notice 26 of the Northwestern regional director quotes instructions from W. C. Kendall, manager of the Car Service Section, to the effect that the movement of fertilizers, including agricultural lime, having already begun, and dealers and farmers having been impressed with the importance of unloading promptly, it is imperative that cars be supplied as called for, without delay.

Freight Claims.—Time limit, Supplement 3 to Circular 84 of the Northwestern regional director contains modifications of the provisions of Supplement 2 to Circular 84 regarding the two-year and one-day limitation in the conditions of the bill of lading. The Interstate Commerce Commission having held that the limitation in the bill of lading does not prohibit the payment after two years and one day of meritorious claims if seasonably filed, claims on account of shipments moving prior to federal control, if filed within the period prescribed in the bill of lading, should be paid or declined on their merits, provided that, in every case, the consent of the corporation to such payment is first obtained. Until further notice, claims on account of shipments moving during federal control, if filled within the period prescribed in the bill of lading, should be adjusted on their merits, notwithstanding the two year and one day clause in the bill of lading.

Export Bills of Lading.—Supplement 8, canceling Supplement 7 to Circular 282 of the Central Western regional director, amends Paragraph 5 of the original circular by naming a list of authorized steamship lines in connection with which through export bills of lading may be issued.

Supplement 7 to Circular 252 of the Southwestern regional director contains several exceptions to Section 3 of the original circular headed "Ocean Contracts and Guarantees."

Supplement 2 to Circular 257 of the Southwestern regional director states that the notations to appear on through export bills of lading contained in Paragraph C of Section 9 of the original circular should also appear on through bills covering shipments for Antwerp.

Movements of Pulpwood.—Supplement 1 to Freight Car Distribution Notice 15 of the Northwestern regional director states that it is necessary that full car supply be provided for all shipments of pulpwood destined to manufacturers of newsprint paper.

Colorado Commission Urges Building Three Tunnels

State Bond Issue, Authorized by Popular Vote, Suggested as Means of Financing Projects

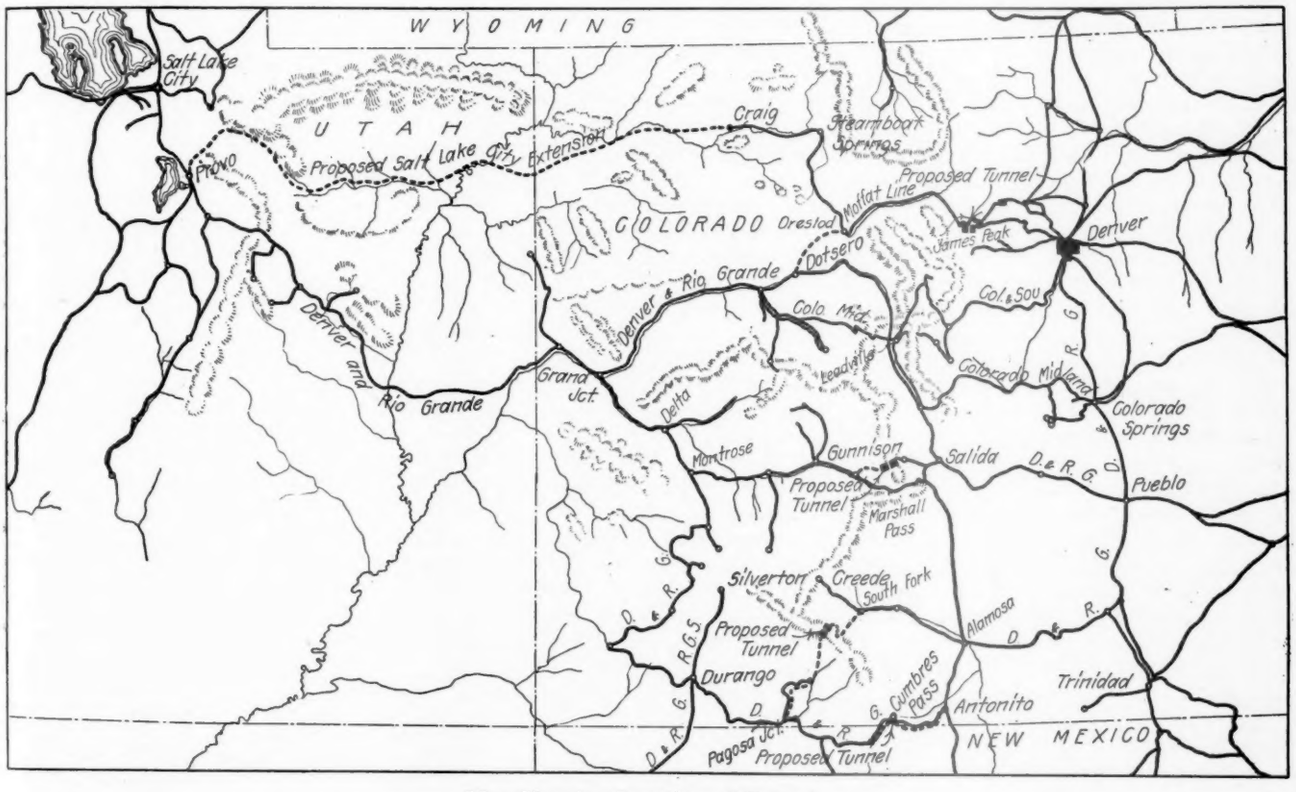
THE BUILDING of three railroad tunnels in Colorado, the Moffat tunnel, the Cumbres Pass tunnel and the Marshall Pass tunnel, by means of a state bond issue authorized by an amendment of the state constitution to be voted for by the people at the next general election, has been recommended by the State Railroad Commission of Colorado in its first annual report to Governor Oliver H. Shoup. Concerning the three projects the report of the commission says in part:

"The heavy grades and great elevations on all the railroad lines in Colorado crossing the continental divide—which traverses the central portion of the state from its northern to its southern boundaries—obstruct railroad operations by making the operation of the roads unusually slow and expensive, so that traffic, where it has been developed, naturally follows lines to the north and to the south of Colorado, where the grades are easier, and much business is thus deflected from the established commercial centers of the state.

"The members of the State Railroad Commission, charged with the duty of endeavoring to correct these conditions, have given consideration to ways to improve this poor transportation situation and have reached the conclusion that the greatest improvement in conditions would result from the building, as soon as possible, of three important railroad tunnels through the main range, at moderate elevations and at the following available sites where the range is thin: One 6.4 miles long, from the drainage basin of the Platte to the drainage basin of the Grand river, near the line of the Denver & Salt Lake (Moffat Road) at James Peak, at an elevation of 9,100 ft.; one 6 miles long, from the drainage basin of the Arkansas to the drainage basin of the Gunnison river, near Marshall Pass, at an elevation of about 9,500 ft.; and a shorter one near Cumbres Pass, from the drainage basin of the Rio Grande to the drainage basin of the San Juan river. If these tunnels were constructed the grades on the main lines of the east-and-west railroads in Colorado (now having maximum grades of from three to four per cent, excessively expensive to operate) could soon be reduced to a maximum of two per cent—a moderate gradient found in places upon most of the heavy traffic transcontinental railroads in this country—and the tunnel portals would be located in forested areas where no extraordinary snow conditions would need to be combated in the winter time.

"The commission has reached the conclusion that the construction of these three main range tunnels is feasible, that the annual expenditure necessary for and during their construction would be a moderate sum, and that their construction and use on terms providing reasonable compensation to the builders would be of great value to the railroads; that it will require approximately four years after work upon them is begun to construct the longer ones; and that their construction would quickly solve the greatest difficulties now embarrassing the Colorado transportation situation.

"The commission is of the opinion that the construction of these tunnels is a matter of great public concern, and that their construction should be undertaken by the state of Colorado after securing from the railroads which would use them enforceable contracts for their use on terms reasonably re-



Map Showing Location of Tunnels

munerative to the state. If these constructions, needed in the public interest, are to be carried on without delay, we believe that in all probability the work will have to be done by the use of public credit. The properties of the railroads which would use these tunnels are now in the hands of the courts under receivership proceedings, and their operation and maintenance are being carried on by the federal government. No definite proposals for payment for the use of the proposed tunnels have been secured from their probable owners. However, since the construction of the proposed tunnels would result in vastly improved and cheapened operating conditions for these roads, as well as in great advantage to the people of the state common sense would lead to the conclusion that arrangements can be made—if the state proposes to build them—for the use of the tunnels by the railroads on terms which will pay interest on their cost and provide a sinking fund to discharge, within a reasonable term of years, the principal of the bonds issued to build them—whether the railroads continue in receiverships or continue to be owned by corporations, or come to be owned by the federal government.

"It has been customary with courts, when railroad properties have come into the hands of court receivers, to authorize the issue and sale of receivers' certificates when necessary to provide money required for their preservation and conduct, such certificates being generally a first lien upon the properties on account of which they are issued. It seems not unreasonable to assume that in the case of the Colorado railroads which would use the proposed tunnels, which are shown to be necessary to their proper operation and preservation, the execution by the receivers of contracts between the railroads and the state for their use and for securing their prompt construction by public authority might properly be authorized and ordered by the courts in which the properties rest under receivers, without delay and under fair agreements which would be binding upon the railroad properties when the receiverships are concluded.

"If these tunnels are now to be built by the state of Colorado an initiated amendment to the state constitution, authorizing the State Railroad Commission to build them, providing for a bond issue necessary to defray their cost and specifying terms of their construction and the terms of contracts for their use by the railroads, should be submitted to the voters of the state for approval at the next general election."

Just how these tunnels could be constructed by the people of Colorado, in other words, the legal method of procedure for accomplishing the desired result, is outlined in a statement by Herbert S. Hadley, counsel for the commission. This statement is included in the report of the commission to Governor Shoup.

Description of the Projects

Major L. D. Blauvelt, consulting engineer of the commission, is the author of a map and a detailed report of the proposed tunnels which contain a more adequate description of the projects. Major Blauvelt's contribution to the report is substantially as follows:

"From a glance at the accompanying map one may see the railroad situation as at present existing in western Colorado. The northwest, middle west and southwestern territory is penetrated and served by four operating lines of railroads, two of which are narrow gage. All have grades of 3 per cent and over, and three have grades of 4 per cent, each wending its circuitous way to the summit of the Rocky Mountains. In no case is this summit less than an elevation of 10,000 ft. above sea level, and in one instance as high as 11,660 ft. Climatic conditions at these altitudes during the greater part of the year are such as to render rail transportation intermittent, unreliable and a source of anxiety and excessive expense to both railroads and shippers alike.

"These adverse transportation conditions can be relieved, the excessive grades and curvatures reduced and the very severe climatic conditions eliminated by the construction of tunnels piercing the granite rocks of the mountain ranges below the present summits, over which the railroads pass. The location of the roads at the lower elevations within forest areas affords to a greater degree protection from the severe blizzards of the higher altitudes.

"Fortunately, not far from the existing railroads crossing the mountains into western Colorado there are places at comparatively low elevations where the topography is such as to afford desirable locations for tunnels of not excessive length and in close proximity to the existing lines of railroads. These tunnels would be so located that with construction of reasonably short connecting lines to the present operated lines of railroads they will serve and form a part of the existing railroads.

Northwestern Colorado

"This extensive and but partially developed territory is served by the Denver & Salt Lake (Moffat Road), located approximately midway between the Union Pacific on the north and the Denver & Rio Grande on the south, with its present western terminus at Craig, Colo., about 100 miles east of the Colorado-Utah boundary. As originally planned, it was to have been a connecting link in the great system of transcontinental railroads, and its construction was in keeping with up-to-date, first-class railroad practices; grades limited to 2 per cent, maximum curvature of 10 deg., and contemplated tunneling of the continental divide.

"It is needless to refer herein to the causes that led to the postponement of the tunnel construction, and in lieu thereof the expedient was adopted of building a temporary line over the summit of the continental divide with 4 per cent grades and 16 deg. curves. A large portion of this temporary line is above timber line and exposed to the most severe weather conditions of any of the Colorado railroads, resulting in conditions during the winter months that often are prohibitive to successful or dependable operation.

"The future development of the resources of the state tributary to this railroad is dependent upon improved transportation facilities, and without the construction of a tunnel avoiding the heavy grades and the high crossing of the continental divide the Moffat Road has practically reached the limit of its carrying capacity.

"Extensive surveys have been made from time to time to determine the best location for a tunnel through the continental divide to relieve the existing operating conditions of the railroad via the 4 per cent temporary line over Corona Summit, resulting in the location of a 6.4 mile tunnel at an elevation of 9,100 ft. above sea level, with its eastern portal on the South Boulder watershed near Newcomb, Colo., a distance of 0.6 mile from Moffat Road and with its west portal on the Fraser river watershed two miles from the station of Vasquez, Colo. These surveys have determined the selected tunnel site to be the only one that exists at as low an elevation of 9,100 ft. directly west of Denver and for many miles north or south of the Moffat Road.

"The construction of this tunnel would eliminate all of the 4 per cent grades and the 16 deg. curves of the Moffat Road. It would save 2,500 ft. of rise and fall, some 8,000 deg. of curvature, and no portion of the road would be near timber line, avoiding severe snow conditions and shortening the line 23½ miles as compared with the present operating line.

"With the assurance of the construction of a 6.4-mile tunnel, securing dependable transportation facilities, the development of the resources of the 10,000 sq. miles of territory tributary to the Moffat Road would be assured, operating conditions for the railroad would be on a par, if not more

favorable, than any other railroad in the state, and the toll that the railroad could pay for the use of the tunnel would be more than sufficient to cover interest charges on the cost of construction and provide a reserve for the retirement of the bonds issued for the tunnel construction.

"As a further aid to the development of northwestern and middlewestern Colorado, consideration should be given to the construction of 42 miles of standard gage railroad from Orestod, Colo., on the line of the Denver & Salt Lake, 127 miles via the tunnel from Denver, following the valley of the Grand River westerly to Dotsero, Colo., a station on the Denver & Rio Grande, 343 miles from Denver.

"Surveys were made of this route under the writer's direction in 1913, and it was demonstrated that a practical line could be constructed without serious physical difficulties, securing a maximum gradient of ¾ per cent and 8 deg. maximum curves. Such construction would save 173 miles in the haulage of freight destined to Denver and points northeast and originating at points west of Dotsero. The same saving is applicable to freight originating in Denver and east and destined to Dotsero and west if routed via the Denver & Salt Lake. The saving in time to the shippers of the Grand valley on transportaiton of perishable freight and livestock would be an incentive to increase a profitable exporting of fruit, cattle, sheep and hogs.

Middlewestern Colorado

This territory is served by two lines of the Denver & Rio Grande, one its main line from Denver and Pueblo, Colo., to Salt Lake City, Utah, and Ogden, crossing the continental divide west of Leadville, Colo., at Tennessee Pass, and providing transportation to that portion of the "Western Slope" tributary to the Grand river valley west of Dotsero.

"The second route of narrow-gage construction branches from the main line of the Denver & Rio Grande near Salida, Colo., detours to the south and west, and by 4 per cent grades and sharp curvature climbs to the summit of the continental divide at Marshall Pass, 10,680 ft. above sea level. It then descends westerly through the towns of Gunnison, Colo., Montrose and Delta to a junction with the main line at Grand Junction, Colo.

"It is particularly the betterment of the transportation facilities, afforded in middlewestern Colorado and the adjacent country by this narrow-gage route, that your commission has under consideration. Here are to be found similar transportation difficulties to those which handicap the development of northwestern Colorado. Steep grades, excessive curvature and the severe climatic conditions encountered at the great elevations obtained in crossing the continental divide, together with the limitations of narrow-gage equipment, all combine to make railway operation costly and unsatisfactory.

"Engineering investigations show that a tunnel can be located to pierce the continental divide northerly from Marshall Pass at an elevation of 9,500 ft. above sea level and not to exceed 6 miles in length, having its eastern portal near the station for Garfield, Colo., on the Monarch branch of the Denver & Rio Grande and its western portal in the valley of the Tomichi river below the town of White Pine, Colo.

"Preliminary investigations indicate that the connecting lines from the tunnel portals to the present operated road can be constructed with grades not to exceed 2 per cent and maximum curves not over 10 deg., and with a moderate readjustment of lines. The construction of this tunnel and connecting lines would reduce the maximum curvature from 25 deg., as at present existing over Marshall Pass, to 10 deg. via the tunnel line, and the maximum grades from 4 per cent to 2 per cent, eliminate 1,300 ft. of rise and fall and avoid the serious snow conditions affecting the operation of the present narrow-gage line over Marshall Pass.

"In connection with this tunnel construction certain grade reductions and line revisions should be considered at places on the existing operated line that will afford an eastern outlet for the exports of this middlewestern territory via a low grade standard gage railroad to Pueblo and the east.

Southwestern Colorado

"Southwestern Colorado and that portion of northern New Mexico tributary and dependent on its rail outlet through Colorado is served by a branch line of the Denver & Rio Grande, being of standard gage construction from Pueblo to Antonito, Colo., then narrow gage over the continental divide at Cumbres Pass at an elevation of 10,015 ft. above sea level, then westerly to Durango, Colo., and Silverton, with a standard gage line from Durango extending to Farmington, N. M. The country west and northwest of Durango is served by the Rio Grande Southern, a narrow-gage line connecting with the Denver & Rio Grande at Durango.

"In the development of this great southwestern territory the continental divide again interposed its difficulties to economic and satisfactory railway operation. Cumbres Pass is reached at an elevation of 10,015 ft. by the introduction of 4 per cent grades and 20 deg. curvature. The climatic conditions at this point are as bad, if not more severe, than any along the main range at this altitude and, as in northwest and middlewest Colorado, the country is dependent for its development upon railroad transportation which is now unsatisfactory and inadequate.

"Surveys have demonstrated the practicability of a tunnel below Cumbres Pass of about one mile in length, and its connecting lines from either portal to the present operated line would have grades not exceeding 2 per cent. The construction of this tunnel and connecting lines would materially reduce the distance between common points east and west of the tunnel.

"With that portion of the main line standard gaged from Antonito via the proposed tunnel under Cumbres Pass to Durango, southwestern Colorado would have standard-gage railroad connections with Pueblo and markets north and east, with grades not to exceed 2 per cent, other than about 23 miles of 2½ per cent and 3 per cent approaching La Veta Pass.

"An alternate tunnel location avoiding Cumbres Pass and tunneling continental divide south of the station of South Fork, Colo., on the standard gage Creede branch of the Denver & Rio Grande, is practical. This tunnel would be approximately 1½ miles long, and the lines of approach to either portal would connect the Creede branch from a point near South Fork with the narrow-gage railroad west of Cumbres Pass near Pagosa Junction, Colo.

"Pending further engineering investigations to determine the relative cost of construction and the operating advantages of the two lines under consideration, it is questionable as to which tunnel should be adopted, but the construction of either would fulfill the requirements necessary to afford greatly improved and much needed rail transportation to southwestern Colorado.

"It is not practical without further engineering investigations to prepare a detailed estimate of the cost of the proposed tunnels. My knowledge of the situation and of conditions now existing warrant the conclusion that if the construction of the tunnels were begun, to be completed within about three and one-half years, the cost would not be excessive compared with what it would have been if undertaken five years ago.

"There are no difficult foreseen obstacles to overcome in the construction of the longer tunnels. The locations of all the proposed tunnels are adjacent to operated lines of railroad, affording transportation for labor, machinery and supplies.

Supervisory Officials Object to Being Unionized

WASHINGTON, D. C.

A COMMITTEE representing the Grand Order of Supervisors of Railroads is in Washington trying to defeat a provision of the Cummins railroad bill offered as an amendment while the bill was in the Senate, by Senator Spencer of Missouri, which, they believe, would tend to "unionize" the subordinate railroad officers and align them with the labor organizations of the employees instead of treating them as members of the official family.

The Spencer amendment provides for the creation of a special board of adjustment, similar to those provided for various classes of employees, to have jurisdiction over controversies respecting wages and working conditions of subordinate officials in case of differences between subordinate officials and the companies which are not adjusted with the executive officers. Subordinate officials are defined in the bill to mean "those heretofore classified as such by the United States Railroad Administration, and such other classes as may be so designated by the (transportation) board."

It is understood that Senator Spencer offered his amendment at the request of three organizations representing train despatchers, yardmasters and car and locomotive foremen, and was led to believe that it represented the general desire of supervising or subordinate officials to have a board at Washington to handle their grievances. While the organizations named seem to have come to the conclusion that labor union methods would be more advantageous to them, than their classification as officers, the Grand Order of Supervisors has undertaken to show the conferees that large numbers of supervising officials do not share in that belief. They assert that they should not be treated as labor organizations, and that the creation of the proposed board would tend to separate their interests from those of their companies, and of other officers; particularly as the Railroad Administration has not made any classification of subordinate officials, and under the terms of the bill it would be entirely uncertain which classes of officials would be included. The Railroad Administration has designated certain classes as officers, thereby drawing a line between classes of officials.

The Grand Order of Supervisors of Railroads, of which T. M. McGurty of the Pennsylvania, is president, with headquarters at Columbus, Ohio, includes in its membership train masters, assistant train masters, general yard masters, yard masters, assistant yard masters, terminal and junction agents, traveling auditors, claim adjusters, assistants to all operating officers, master mechanics, general foremen, foremen, assistant foremen, gang foremen, mechanical department piece work inspectors, supervisors of store rooms and accounting departments, supervisors of relief department, supervisors of signals, supervisors of freight and passenger departments, supervisors of shops, supervisors of car repairs, master car builders, supervisors of wrecking department, supervisors of bridges and buildings, supervisors of electrical department, supervisors of safety department and supervisors of mechanical drafting department, on 56 different railroads. Its constitution contains an anti-strike clause. It declares that it is voicing the sentiment of all of its members, and it is sure that it states that of 95 per cent of all supervising officials in protesting against the Spencer amendment. The reasons for objecting to it are stated in Mr. McGurty's letter of protest as follows:

"The Railroad Administration under government control has not in any way attempted to separate any officer or officials of the railroad, but on the contrary, has kept them intact. Their latest instructions to the regional directors, dated December 8, 1919, specifically mention that the supervisors, such as general foremen, round house foremen, departmental foremen and assistants will be classified as officers, and given the same consideration as officers in other departments.

"To draw any line of demarcation in the rank of supervisors or supervising officers in any department other than provided for in the original bill, would break down and absolutely destroy efficiency.

"We know that this amendment would automatically place us in the same ranks with the other employees now affiliated with and controlled by the A. F. of L., which is undesirable at any time, and particularly at this time, for the reason that all concerted efforts must be centered to stabilize the general unrest now among railroad employees.

"It will be readily seen how discipline would be destroyed by placing subordinate officials and officials in the position that this amendment would necessarily do, if it was enacted into the statute, for the reason that confidence would be impaired by separating the close relations necessary in carrying out instructions for the maximum production.

"The so-called national agreements between the boards now existing have kept our class of employees separate from the labor organizations, and have wisely done so, while the special board provided for in this amendment would be detrimental rather than beneficial to the public, the railroads and the supervisors.

"Our experience as practical supervisors has proven to us that the boards created under federal control have done much to break down this relationship between officers and employees. From this experience it is our knowledge that the special board created in the amendment will break down the relationship now existing among the officers.

"As railroad officers, we feel confident that we can adjust more satisfactorily any difference in the family than we can by separating the family and take the grievances to any board or committee outside."

"We had," said Mr. McGurty, "a very interesting and instructive conversation with Senator Spencer, who advises us that his object in fathering this amendment was as follows:

"That he was led to believe that it was the general desire of the supervising officers or subordinate officials to have a board of this kind and that he believed at the time it would be best for all concerned. However, his information was gathered without general investigation, for the reason that the question came up suddenly.

"He gave us considerable time and consideration, and advised that if we could secure the majority of the officers of the respective so-called sub official organizations, that he would gladly suggest the amendment be given no consideration. This we considered a very fair proposition. However, we know we cannot secure this, for the reason that the leaders of the train despatchers, yard masters and mechanical foremen associations, who were the men who solicited and urged him for this amendment, are men who have always affiliated with the labor unions and are now affiliated with them as individuals. Consequently, their sentiments are thoroughly in accord with the labor union practices, and are more concerned about the welfare of the labor organizations rather than in the efficiency of our railroads or the welfare of the public generally. For example, during the last strike of shop employees on the railroads last August, the leaders of the latter organization issued instructions that their members should not perform any services to keep the railroad trains in operation, the results of which were that the public suffered."

GRADE CROSSING ACCIDENTS, as reported by the Steam railroads in Wisconsin to the Wisconsin State Railroad Commission numbered, in the last quarter of 1919, 33. The reports show that 15 persons were killed and 55 injured. Of the total number reported, 23 were accidents involving automobiles, in which 14 were killed and 20 injured.

Annual Report of Regional Director Hardin

Indicates Gradual Return to Normal Railroad Operating Conditions and Growth of Export Trade

A GRADUAL RETURN to normal railroad operating conditions following the end of war-time transportation demands, and a continued growth in export freight business were indicated in the annual report of A. T. Hardin, regional director of the eastern region to Director General Hines.

"Conditions were unsettled at the beginning of the year," the report said, "Due to the sudden stopping of traffic in war materials, with consequent falling off in freight business, the readjustment of business from a war to a peace basis, the large number of experienced employees who had left to enter the government service and other war activities and whose places had been filled by inexperienced employees, and the lowered condition of freight and passenger equipment due to continuous service during the strain of the war period.

"All of the roads have been in a position to handle a larger volume of traffic than offered, there having been a marked and cumulative falling off in freight business following the armistice and continuing until March, since which time there has been a gradual and continuous increase, although below the volume of the corresponding months in 1916. Passenger traffic has been heavy, each month showing an increase over the same month of 1917 and 1918, and since April a steady increase in volume. The decreased traffic was handled promptly and without interruption during the year, except for minor temporary accumulations."

Figures included in the report showed that following a decrease in February of 15.9 per cent in the net ton miles of freight handled as compared with February, 1918, the traffic in March dropped still further until it was 32.8 percent below the 1918 figures, the freight situation gradually improved until in October the net ton miles handled was only 4.5 less than the figure for October, 1918. Passenger traffic maintained a steady increase over 1918 figures throughout the year.

In export freight the eastern region railroads handled more than twice as much traffic as was handled by the roads during 1913 or 1914 and 7.2 percent more than was handled in the record year of 1918.

The increase in export freight traffic, the report explained, was handled in spite of three different strikes of marine workers and boatmen in New York harbor during the year. The report outlined the steps taken to meet the situations which grew out of these labor disturbances, and pointed out that the congestion in and about New York harbor made it necessary to re-route freight by all rail routes to New England.

"To meet the falling off in traffic, forces were reduced and retrenchment of expenditures effected wherever practicable. Among the measures of economy adopted were the reduction to a minimum of Sunday and holiday work, particularly at interchange points and where conditions permitted a reduction in the number of hours of operation at terminals, yards, stations, shops and engine-houses; alternate day local forces and branch line freight service and consolidation and unification of facilities and forces wherever practicable."

The report asserted that a campaign for fuel economy had saved about $9,200,000 for the eastern region lines and that an additional saving of $7,955,000 had been made by consolidating operations at various terminal points. The report listed various traffic changes designed to effect economies and said:

"The total amount saved by these various reductions and economies it is not practicable to estimate. It has of course been necessary to restore forces and service with the gradual increase in business since March, but this has been done only as the necessities required it in order that prompt and efficient service might be rendered at all times."

"The return to more nearly normal conditions of traffic," the report said, "Has resulted in the percentage of loaded to total car miles increasing from 64.3 percent in December, 1918, to 71.2 percent in August, and 71 percent in September. In October the showing was not so good, declining to 69.4 percent, ascribable to the heavy movement of empty coal cars to the mines for loading in anticipation of the miners' strike."

The report set forth that freight claims in the Eastern region are now being adjusted more promptly "and probably with less friction with the public than ever before." Claims unsettled on December 1, 1919, were 115,000, as against 333,418 on December 31,1918, and 362,480 on December 31, 1917. The roads paid out in 1919, however, $36,000,000 on account of loss and damage, as against $17,110,634 in 1918, and $10,261,160 in 1917.

"The number of claims on hand unadjusted on December 1, 1919, was less than the number presented monthly," the report said, "the average claim now being settled in thirty days. Special efforts have been concentrated on claims over four months old, the number of such claims being reduced very materially during the year. The increases in the amount of claims paid is in large measure due to the increased value of the property transported, the unsettled labor conditions incident to the war and to increased activity in the settlement of claims which has resulted in the final charging off in 1919 of a considerable number of claims on 1917 and 1918 business which accumulated during the war."

The report explained in detail the steps taken to prevent damage claims, and the precautions taken to cut down the increase in loss and damage charged to theft.

The report outlined the difficulties confronting the roads in the work of maintenance and repairs, and said: "Speaking in general and with the exception of the shortage in the amount of major materials used, the roads in the region as a whole have been reasonably well maintained. In some instances a material shortage of labor has made it very difficult to carry out the maintenance program as made out. Where roads had apparently overexpended in 1918, every possible effort has been made to reduce the expenditures during the latter part of the year to the actual necessity from the standpoint of safety in operation. On the other hand, where roads underexpended in 1918 and a material increase in the maintenance budget was necessary this year in order to get the road back in as good condition at the end of the year as of January 1, 1918, no reductions have been made and every effort possible has been made to carry out the necessary work. In most cases, results have been reasonably satisfactory, except where the shortage in tie-supply, rail requirements or other conditions over which we have no control, have made it impossible to apply the necessary materials."

"Over 90 per cent of all passenger trains arrived at terminals less than thirty minutes late during the eleven months to December 1.

"Passengers carried one mile by Eastern region railroads for the first nine months of 1919 were 8,530,433,185, which

is an increase of 8.2 per cent over same period of 1918 and an increase of 11.3 per cent over same period in 1917.

"There has been a heavy increase in suburban passenger traffic in and out of the larger cities due to the restricted housing conditions in the cities forcing people into the suburbs.

"The sale of railroad and sleeping car tickets at the same window has improved efficiency both in the selling of tickets and in the equal loading of Pullman cars to utilize all of the space.

"During the first ten months of the year there were handled on the Eastern region railroads 4,775 troop trains, a total of 1,037,283 train miles, carrying a total of 2,028,273 officers and men.

"For the past 25 years the practice has been for customs inspectors at frontier points, Buffalo and Detroit, to examine all hand baggage of passengers on through trains, marking or stamping same for the information of the customs officer at the opposite frontier point. This has resulted in a great annoyance and constant complaint from passengers; but it has been found impossible in the past to have the practice changed. However, the matter was again taken up early in 1919 and it has been arranged with the Treasury Department to substitute for such inspection the certificate of the conductor of the train covering any passengers boarding the train in Canada, the customs inspectors confining their attention to such passengers, leaving undisturbed the baggage of through passengers.

"Continuing the measures adopted immediately following the armistice close co-operation has been maintained with the Allied Shipping Board, the War and Navy departments, the Grain Corporation, Belgian Relief, etc., in arrangements for transportation to the seaboard of the things that were most needed, the transportation to storage or otherwise of the considerable quantities of munitions and war material no longer required abroad and in providing transportation for the prompt handling of the returning overseas forces. Close and careful study was given to the changed conditions and transportation requirements of the country incident to the transition from a war to a peace basis with a view of bringing about normal conditions on the railroads as rapidly as it could be done.

"With a view to better controlling the export situation incident to the increase in commercial export, a Delinquent Bureau was placed in operation to keep a record of the unloading of lighters; any accumulation for a consignee resulting in the refusal of further permits until relieved. Hearty co-operation was obtained from practically all of the steamship lines, consignees and export houses, as all were anxious to keep off the delinquent list. To further conserve lighterage facilities, 412 vessels were docked at railroad piers for direct loading from the piers and large quantities of provisions, flour and other freight for Belgian Relief, United States Food Administration and the Allied Governments were handled in this way. Some full cargo commercial freight was also loaded direct from piers but the possibilities of handling such shipments in this manner are more limited due to the fact that numerous steamship companies have their own docks on which they accumulate their cargoes.

"During the sugar beet loading season of 1918-19, 28,136 cars of sugar beets were loaded, being an increase of 12,700 cars or 76 per cent over previous year. There is also a heavy movement of the new crop now in progress.

"The reduction in the volume of traffic moving resulted in a surplus of freight cars; the maximum number stored being 40,700 box cars on January 16, and 49,145 open-top cars on March 3. By the end of February, however, the surplus of available box cars had been absorbed by heavy demand from automobile manufacturers and other industries in the Pittsburgh district, Michigan and the Ohio—Indiana territory making it necessary to curtail delivery of empty box cars to other regions, and to Canadian roads.

"During April the Belgian Relief Commission's shipping program was completed, approximately 900 ships having been loaded with about 5,000,000 tons of supplies, the movement having continued heavy during the months succeeding the armistice.

"During May the British ministry cleaned up practically all of the large amount of steel which it had stored on the ground adjacent to Atlantic piers during the war period and the French Government was making rapid progress in loading its steel from ground storage. A further relinquishment of shipping by the Allied Governments for commercial purposes was announced.

"With a view to having maximum storage facilities ready for the prospective unprecedented grain movement during following months, arrangements were made in conjunction with the United States Food Administration to dispose of grain on hand at rail termini over thirty days; and Grain Control Committees were appointed at all principal grain distributing centers to regulate the movement.

"The return to normal conditions has resulted in a reversal of the tendency which was noted in 1918 in that there has been a substantial increase in westbound freight traffic and a decrease in the eastbound resulting in a more evenly balanced traffic, the percentage of loaded to total car miles in September showing an increase of approximately 5 per cent over corresponding month in 1918.

"To speed up the movement of equipment through terminals and the prompt loading and unloading and release of cars by consignees, Terminal Efficiency Committees were organized at all important terminals throughout the territory in the early part of October and considerable has been done by these committees in effecting better car movement by the careful checking of yards and industry tracks and as a result of studies to expedite traffic movement through the terminals.

"In anticipation of the strike of bituminous coal miners extraordinary efforts were made to move empty coal cars to the mines in October and during the last two weeks of that month the use of open top cars was restricted largely to coal loading, with some exceptions to permit loading of ore and limestone from vessels at lake ports to release the boats for reloading lake coal, also for the loading of sand and gravel for building construction. This action resulted in a considerable increase in production of both bituminous and anthracite coal, Eastern region roads loading on October 27, 7,133 cars of bituminous coal, the heaviest production for any one day during Federal control of which we have record.

"Movement of livestock, dressed beef, provisions and other perishables from Chicago has been heavy throughout the year and reached the peak movement in October when an average of 1,281 cars per day were handled, which is the record daily movement for the period of federal control. The traffic has been handled promptly and owing to favorable weather without a delay, except labor difficulties at the Seaboard causing temporary accumulations due to the shipments forwarded after permits had been canceled and before restrictions could be made effective.

"The total number of cars of bituminous coal loaded on Eastern region roads in 1919 to November 30 was 1,089,746, a decrease of 445,448 cars, or 29 per cent compared with same period previous year. Anthracite coal loaded totaled 977,532, a decrease of 166,721 cars, or 16 per cent.

"Anthracite coal production has continued uninterruptedly during the year except for a period of about one week during September when the miners on the Delaware & Hudson Railroad went on strike and about 50 per cent of the miners

on the Delaware, Lackawanna & Western Railroad struck in sympathy; the decreased tonnage reflecting the lowered demand, as a full car supply was available at all times.

"There were 18,495 cars of automobiles loaded by Eastern Region railroads up to December 31, 1919. A representative of this office was stationed at Detroit when the car shortage occurred to apportion the car supply and regulate shipments and the situation has been taken care of to the satisfaction of shippers since, notwithstanding that at times difficulty has been met in fully supplying the demands.

"The receipts of California fruits at the Erie piers, New York City (where the bulk of this traffic is handled), for the eleven months to December 1 have totaled 21,862 cars, and is estimated for the year 25,000 cars. The best previous yearly movement was in 1917, when 17,877 cars were handled, the movement this year exceeding the best previous record by 7,123 cars, or 39 per cent.

Effective December 1, 1918, tug despatching for the Baltimore & Ohio, Central Railroad of New Jersey, Delaware, Lackawanna & Western, Erie, Lehigh Valley, New York Central, Pennsylvania and Port Reading railroads was consolidated in the office of the marine director, New York Harbor, and the tugs of these roads practically pooled, in that wherever it was possible for the tugs of one road to advantageously tow boats for other roads it was so arranged. As a result, during the months of December, 1918, and January and February, 1919, when tug boat crews were working twelve hours per day, there was a large decrease in the amount spent for the charter of privately owned tugs, which have always been used to assist in towing where railroads did not have enough steam of their own.

"Considerable interchange of lighterage equipment has also been arranged between the various railroads, and in the case of car floats especially this greatly facilitated the prompt movement of cars, as there are no privately owned car floats to be chartered in New York harbor. In order to take care of increased movement of freight for lighterage delivery, it has been necessary to charter a considerable number of privately owned lighters and scows, but the rates paid for the hire of same have been kept down to the minimum by reason of having the chartering of equipment for all roads performed by a charter master, thereby eliminating competitive bidding by one road against another, which would naturally raise the charter rates when there is a scarcity of equipment.

"The rerouting of pulp wood from the White Mountain division of the Boston & Maine Railroad to mills on the Maine Central, resulted in saving of from 53 to 93 miles' haul, depending upon the originating stations.

"There has continued during 1919 the arrangements put in effect last year for the handling in solid trains of livestock, fresh meats, poultry and other perishable freight from Chicago, St. Louis, Cincinnati, Buffalo and other western points on specific days of the week via roads best fitted to handle them, thus making reduction in the feeding requirements for livestock as well as in the number of fast trains required to handle this freight. The decrease from Chicago has been an average of six trains per day, and the average cars of this high-class traffic per train has increased from 25 to 35.

"The Eastern Freight Inspection Bureau was established April 1, 1919, for the purpose of inspection of freight shipments to uncover improper packing, marking, description, weighing and routing of shipments, checking of weight agreements, scale supervision, egg inspection, investigation of claims where inspection is involved, supervision of transit arrangements, demurrage and storage, and livestock inspection. Considerable economies have attended the work of the bureau to date although it is still in the formative stage, the savings in July, August and September amounting to $848,000,000. In addition there was a gain in weight secured by inspection of 57,000 tons, approximately 60,000 packages, improperly marked or packed, were rejected, and several thousand cases of improper marking personally brought to the attention of shippers.

"By the consolidation of tariffs of the various carriers under the Eastern Freight Tariff Bureau, saving in printing cost alone of approximately $228,000 was effected during the year. The bureau now has under way the compilation of consolidated exceptions to official classification for trunk line and New England territory, a consolidated westbound routing guide, a consolidated St. Paul tariff and consolidated class rate tariffs between trunk line and New England territories. The Central Territory Freight Tariff Bureau, which is a continuation of the former bureau maintained by the Central Traffic Association, also extended its activities by the issuance of consolidated tariffs, and now have under way various additional consolidated issues for publication in the near future.

"Considerable progress was made in the reclamation of usable material from scrap, resulting in large savings; and a constant effort has been made to dispose of scrap material by sale to keep the amount on hand to a minimum. Special attention has also been given to the reduction of stocks of material on hand to the lowest possible point consistent with taking care of current requirements, by transfer of surplus materials to roads requiring same, instead of ordering new material, and by limiting purchases of new materials by careful scrutiny of requisitions.

"New stores methods have been put into operation on all roads as far as practicable, and through frequent inspections conditions have been greatly improved, all stores employees being placed under the supervision of the Stores Department, uniform stock books installed and up-to-date methods of storing and handling material adopted."

Accident Bulletin No. 70

THE INTERSTATE COMMERCE COMMISSION has issued Accident Bulletin No. 70, dated September 22, 1919, giving the usual statistical report of collisions, derailments and other accidents for the quarter ending December 31, 1918, and for the twelve months ending on that date. In train accidents, in the twelve months, 286 passengers, 554 employees and 117 other persons were killed and 4,655 passengers, 4,250 employees and 433 other persons were injured. These totals compare with the following totals for 1917: Passengers killed, 131; employees killed, 451; others killed, 109. In "train service" accidents, in 1918, 233 passengers, 2,374 employees and 1,878 other persons were killed and 3,427 passengers, 43,306 employees and 5,268 other persons were injured, as compared with 212 passengers, 2,330 employees, and 2,091 other persons killed and 3,194 passengers, 48,491 employees and 5,514 other persons injured in 1917. In the quarterly bulletins, trespassers are segregated; and the term "other persons," as here given, includes only those not trespassing. In all of the tables "passengers" include persons carried under contract, such as postal clerks and stock drovers; and employees are divided into two items, those on duty and those not on duty. The item "trespassers" includes some employees in each case.

Thus we have a total of 72,841 casualties in 1918, and 80,537 in 1917, as follows:

	1918		1917	
	Killed	Injured	Killed	Injured
Total Nontrespassers	5,442	61,339	5,324	67,141
Trespassers	3,255	2,805	4,243	3,829
	8,697	64,144	9,567	70,970

A third class, "nontrain" accidents, makes a further addition as follows:

Industrial employees, 1918, 491 killed and 108,457 in-

jured; other persons killed 98, and injured, 1,974; adding these to the totals in the small table above we have 9,286 persons killed and 174,575 injured, a total number of casualties for 1918 of 183,861. For 1917 the nontrain accidents totaled 520 killed, and 123,835 injured; making the grand total for that year 10,087 killed, 194,805 injured, and a total number of casualties of 204,892.

For the year 1918 the death list is further swelled by the addition of 97 victims of train accidents and 611 of train service accidents who were reported as injured, but who died subsequently, and whose deaths were reported by the railroads. Adding these 708 to the 9,286 the total of fatalities in the year amounts to 9,994.

The bulletin analyzes many classes of accidents in great detail. Those at highway grade crossings, which are included under the head of train accidents, or train service accidents, are tabulated separately so as to show whether it was a trolley car, an automobile, an ordinary vehicle or a pedestrian which occasioned the accident. Automobile accidents are further classified in a statement showing the number of persons in automobiles. The total number of automobile accidents in 1918 was 2,267, and in 1917 it was 2,074; the total number of persons to whom casualties occurred in 1918 was 4,224 and in the preceding year 4,072; and in each year a few persons on trains were injured in these accidents.

In another table all train accidents and train service accidents resulting in casualties to trespassers are shown, with the total in each state of the Union; and the trespassers are divided into those under 14 years of age, those 14 to 21, and those older; and the last named class is separated into two items, one including tramps and the other including all other persons.

Collisions, in 1918, numbered 8,715, and the damage to cars, engines and roadway was $6,810,990; derailments, 13,568; damage $12,922,920; total train accidents, including miscellaneous, 24,695; damage $20,954,350. The number of locomotive miles run in the year was 1,827,286,803, making the average number of accidents per million locomotive miles, 13.52.

Table No. 61 shows the losses in each kind of collision, and each class of derailment, and classifies the persons killed and injured in these accidents. Table No. 62 divides train service accidents into ten classes, and classifies the persons killed and injured. Table No. 63 is a similar exhibit for nontrain accidents. These last, for the year 1918, numbered 110,922. The number of casualties to shopmen per million hours, was 40.4; to trackmen 17.4. Nine pages are given to further analyses of causes of accidents, and details of bodily injuries; and then a dozen pages are given to further analyses in statements which show totals for each separate railroad. The statement for the eastern district shows 70 railroads; for the southern district 30; and that for the western district 82.

Fifteen pages are given to reports of investigations made of accidents during the quarter ended December 31, 1918; 14 collisions, 3 derailments and the accident at Bedford, Ohio, on October 3, 1918, which resulted in the death of 20 persons and the injury of 19 who were standing on the track at a station, and were struck by a passenger train which approached not under control. Finally the bulletin contains an appendix showing a tabular summary of reports of accidents investigated during the calendar year 1918.

THE SEABOARD AIR LINE water terminal at Savannah, Ga., is being improved to admit of loading large vessels. The Globe Dredging Company is dredging slips to accommodate ships of 25 to 35 ft. draft. A total of 10,000 square feet of berthing space will be available with 26 ft. of water at mean low tide.

Transportation Conference Plan

THE MEMORANDUM FILED with the conferees on the railroad bill by the executive committee of the National Transportation Conference, called by the Chamber of Commerce of the United States, follows:

"The executive committee of the National Transportation Conference begs leave to call to the attention of the conference committee now considering the bills passed by the Senate and the House for the regulation of the railroads certain points which are deemed to be of vital necessity:

"1. The enactment of a statutory rule of rate-making for the guidance of the Interstate Commerce Commission is urged as a measure of prime importance, which must be adopted to bring about the re-establishment of railroad credit and to insure its maintenance upon a stable basis. It is the judgment of the committee that this necessary rule of rate-making should include the following provisions:

a. A general rule similar in language to the rule contained in Section 6 of the Senate bill now in conference, or to the rule that was embodied in the House bill as it came from the committee on interstate and foreign commerce of the House. The substance of such a rule is that the statute shall direct the Interstate Commerce Commission to establish or authorize rates and fares that will yield a fair return upon the value of the property used or held for the service of transportation.

b. The rule of rate making should provide for the establishment of rates and fares designed to yield not less than a stated minimum return upon the aggregate fair value of the property of the railroads devoted to the public service. The National Transportation Conference, after careful consideration of this question, reached the conclusion that the future revenues of the railroads must, in the aggregate, be sufficient to yield a net return of not less than 6 per cent per annum upon the aggregate fair value of the property of the railroads devoted to the public service in each of the several sections into which the country may be divided by the Interstate Commerce Commission for rate making purposes. The executive committee of the transportation conference would now urge upon the conference committee of the Senate and House that the rule of rate making which may be adopted shall, if possible, provide for a minimum return of not less than 6 per cent per annum upon the fair value of railroad property aggregated by appropriate traffic sections of the country. The Senate bill has provided in its rule of rate making for "a net operating income equal, as nearly as may be, to 5½ per centum upon the aggregate value of railroad property." The executive committee of the National Transportation Conference is firmly convinced that under existing conditions 5½ per cent is not an adequate return; but if it be impossible for the conference committee to revise this 5½ per cent upward, we strongly urge that at the very least the phrasing of the Senate bill be changed from "as nearly as may be 5½ per cent" to "not less than 5½ per cent."

If legislation for the future regulation of the railroads is successful in accomplishing its purpose, railroad credit must be reestablished and must be stabilized. A rule of rate making limiting net railway operating income to a maximum of only 5½ per cent upon the aggregate value of the railroads would not enable the railroad companies to secure capital. Private ownership and operation of the railroads would inevitably be a failure.

c. The well-known facts as to the wide differences in the earning capacities of the several railroad companies and systems must necessarily be taken into account in the formulation of any rule of rate making. Rates sufficient to yield a fair average return upon the aggregate value of all railroad properties will afford the more prosperous railroads revenues in excess of their needs and larger than the public should be called upon to provide. It is therefore necessary, in order to establish rates which shall, for the country as a whole, be reasonable, to require companies receiving from a basis of rates so established, earnings in excess of a reasonable minimum stipulated by statute, to turn over to public authority a part of such excess earnings to be used by the public for the more certain stabilization of railroad credit, and for the larger development of transportation facilities.

The Senate bill provides for the division of excess earnings between the carriers and the public by stipulating that of the excess above 6 per cent, one-half of the first 1 per cent shall be placed in a reserve fund maintained by the carrier, and one-half

shall be contributed to a general railroad contingent fund, and that of the excess above 7 per cent one-fourth shall be placed in the carrier's reserve fund and three-fourths shall be paid into the general railroad contingent fund. When the reserve of any carrier equals 5 per cent of the value of its property, the carrier may retain one-third of its income above 6 per cent, and shall turn over the remaining two-thirds to the general railroad contingent fund.

It is the judgment of the executive committee of the transportation conference that the Senate bill provides for taking such a large share of the excess earnings of railroad companies as to run the risk of lessening private enterprise and initiative. The incentives for economy must not be taken away from railroad companies. If this were done the public would lose a great benefit resulting from private ownership and operation of the railroads. The National Transportation Conference recommended that one-half of the earnings in excess of 6 per cent of individual companies should be retained until the company contingent fund reached 6 per cent of the value of the company's property. Up to this point one-half of the excess earnings, and beyond this point, two-thirds of the excess earnings, were by the plant of the transportation conference to be turned over to a general contingent fund which was to be used for the stabilization of railroad revenues and credit. Under this plan the railroads having income in excess of 6 per cent would derive more benefit from their excess earnings than they would derive were the division of excess earnings to be made in accordance with the provisions of the Senate bill.

If it is not practicable for the conference committee to adopt without change the rule of the transportation conference as regards excess earnings, it is recommended that provision be made for the division of all earnings above 6 per cent equally between the carrier and the general railroad contingent fund administered by government authority. It is suggested that, as a compromise, a 50-50 rule of division be adopted. Such a division of excess earnings would not discourage individual incentive and private initiative, nor would it allow even the most prosperous companies to retain incomes which the public might consider exorbitant—so excessive as to cause the authorities responsible for the regulation and establishing of rates to hesitate to provide rates and revenues adequate to the needs of the less prosperous carriers.

"The Senate bill provides for the establishment of a transportation board and the House bill does not. The National Transportation Conference early in its deliberations became convinced that a federal transportation board should be created to perform the many executive functions that must be exercised in administering the legislation for the future regulation of railroads.

"The conference thought that it would be wise not to take from the Interstate Commerce Commission any of the tasks it now performs, although some of them are executive in nature. The Commission has developed the organization for performing the work it is now doing without drawing heavily upon the time and energy of individual commissioners for the supervision of its executive bureaus. The great task of the Interstate Commerce Commission is the regulation and, for the future, the establishment and adjustment of railroad rates and fares. This is a semi-judicial task for which the Interstate Commerce Commission by organization and training is especially fitted. The future control of railroad rates by the Commission will be more complete than past regulation has been. In the judgment of the Transportation Conference it will be unwise to add largely to the duties and responsibilties of the Interstate Commerce Commission by imposing upon it the obligation to carry out the provisions of the proposed legislation for the administrative regulation of railroads. The new duties are so large and of such an exacting nature that a new agency should be created for the performance of the new duties. There should be no conflict of jurisdiction as between the Interstate Commerce Commission and the Transportation Board. Neither body should be subordinate to the other, each should have its definitely defined duties and responsibilities, and act with complete independence and authority."

The members of the executive committee of the National Transportation Conference signing the memorandum are: George A. Post, chairman; Harry A. Wheeler, Emory R. Johnson, Alexander W. Smith, Daniel Willard, W. W. Salmon, Edward J. Frost, Frederick J. Koster, Walter S. Dickey, Paul M. Warburg.

The National Industrial Traffic League on Railroad Legislation

THE NATIONAL INDUSTRIAL TRAFFIC LEAGUE has definitely announced its stand on proposed railroad legislation in the following recommendations which have been sent to members of the Joint Conference Committee of the United States Senate and the House of Representatives:

The National Industrial Traffic League having previously presented its views on railroad legislation to the Senate and House committees respectfully submits the following additional recommendation:

We oppose continuation of federal control after March 1, 1920.

We advocate striking from the bill all reference to a Transportation Board and favor reposing all regulatory authority in the Interstate Commerce Commission.

We advocate striking from the bill the provision requiring compulsory consolidation of carriers, but favor voluntary consolidation subject to approval by the Commission.

We favor inclusion of so-called anti-strike legislation substantially as proposed in the bill as amended by Senate, except to substitute the Interstate Commerce Commission for the Transportation Board. If the joint Conference Committee cannot agree on these provisions the League then favors enactment into the law, substantially the present Canadian Arbitration Act with the added provision that the findings of the Commission shall be made public within 90 days.

We are unalterably opposed to fixing by legislation any specific minimum or maximum rate of return or the distribution of so-called excess earnings, leaving to the Commission the provision of adequate revenue.

We endorse the provisions of the bill beginning with line 15, page 85 to and including line 9, page 88, with the following language added after line 9, page 88: "That all reparation or other claims arising out of transportation over common carriers under federal control made against or filed with the Director General or that may be filed with the Commission within 90 days after this act becomes effective, shall be under the control of the Commission and subject to orders of the Commission which shall act in the place and stead of the Director General in receiving, considering and disposing of all such claims; and to this end the Director General shall turn over to the Commission all records, files and papers in his possession at the date this act becomes effective relating to reparation claims, and the records, papers and files or any part thereof, relating to other claims shall be accessible to the Commission. Any payments in settlement of any claim shall, as to that transportation or part thereof performed by any carrier or carriers operated by the Director General, be made out of any of the moneys or funds described in this act for the liquidation and settlement of shippers' claims arising during Federal control provided that the period of federal control shall not run or be computed against the statute of limitations governing formal procedure concerning any claim referred to in this Section, if formal procedure be begun within the period defined herein."

We recommend the incorporation of the following additional provision after line 12, page 92: "That upon the conclusion of their work all records of the officers of the Directors of Public Service and Traffic, and of all freight traffic committees of the United States Railroad Administration shall be turned over to the Interstate Commerce Commission."

We oppose any consolidation of the express companies like the formation of the American Railway Express Company and therefore oppose any legislation that will permanently continue that consolidation. We favor legislation permitting consolidation after thorough investigation and approval by the Interstate

Commerce Commission to the extent that reasonable competition may be preserved.

Other changes recommended in the letter are concerned chiefly with the phraseology of the bill.

Report of Division of Law

COMPENSATION CONTRACTS between the government and railroad corporations covering 232 railroads for the use of the properties during government control had been made as of January 1, 1920, and the annual compensation to railroad companies involved in completed contracts was $717,153,182.10, or 71 per cent of the total annual rental of $917,000,000 paid by the government to the companies, according to the annual report for the year 1919 of E. Marvin Underwood, general counsel of the Division of Law of the Railroad Administration, to Director General Hines. Mr. Underwood added that negotiations with railroad corporations as to many additional compensation contracts are being actively pushed. He also pointed out that in addition to the so-called standard contracts covered above there have been 133 so-called co-operative contracts executed between the Railroad Administration and smaller railroads, mostly so-called short-line railroads.

"It is appropriate to state," said Mr. Underwood in connection with the standard contracts, "that the actual negotiations between the Railroad Administration and the companies has progressed satisfactorily and as rapidly as could be expected in view of the difficult questions of fact to be determined in each case and the high degree of care and accuracy required. Practically all the larger systems of transportation and a great many of the smaller ones have executed compensation contracts."

Referring to claims of companies for special compensation in addition to the "standard return" provided for in the federal control act, Mr. Underwood stated that such claims had been filed by 124 railroads for compensation amounting in all to $92,318,789.39, and that of these claims, 35 have been allowed in part, totaling $7,493,618.53, 67 have been denied, totaling $45,686,276.74, and 8 have been withdrawn, totaling $553,754.15, leaving still pending 14 claims totaling $9,324,288.15.

Mr. Underwood also reported that 13 railroads with claims in addition to their standard return, aggregating $11,037,359.97, have applied for the appointment of boards of referees under the provisions of the federal control act, that one of these petitions has been dismissed, and in one an agreement has been reached. No decisions have been rendered in the remainder, although hearings have been held in six additional cases.

Mr. Underwood described in detail litigation affecting the railroads under government control during 1919, and reviewed various rate questions in which the Railroad Administration has been concerned. He pointed out that as far as possible the Division of Law of the central administration has acted in an advisory capacity, and has worked through the legal staffs of the various carriers which were under federal control.

Very gratifying progress in avoiding loss and damage claims on the railroads and in promptly settling such claims presented was outlined by Mr. Underwood in his description of the work of the Claims and Property Protection Section of his division. He pointed out that for all railroads under federal control the number of unsettled claims on hand had decreased from 806,707 on April 1, 1919, to 465,722 on November 1, 1919, or a decrease of 340,985 in seven months. During the same period there were 2,439,682 of such claims presented, and of these, 2,780,677 were disposed of. The number of unsettled loss and damage claims more than four months old, also was reduced from 363,476 on April 1, 1919, to 148,683 on November 1, 1919, or a reduction of 214,793 in seven months.

"During 1918 effort was of course concentrated upon the service necessary to the movement of troops, munitions and supplies," said Mr. Underwood, "although every effort consistent with the existing emergency was made to give satisfactory service to the general public.

"At the beginning of 1919 energy was directed to the restoration of service to a pre-war basis, and on January 6, 1919, a nation-wide campaign to prevent loss and damage to freight in transit was started. In order to co-ordinate individual efforts of the various railroad companies, study conditions, bring about co-operation, and make suggestions for improved service, regional prevention officers were suggested and appointed by the regional directors. The result so far obtained in this campaign is very gratifying."

In connection with fraudulent claims, Mr. Underwood reported that the claims of 51 individuals, firms and corporations have been investigated, indictments have been secured in 5 cases, 29 are under further investigation, and 17 have been found not to be fraudulent.

"Following the established custom of the Railroad Administration to minimize as well as prevent loss and damage," said Mr. Underwood, "it was considered advisable to investigate the methods employed by all railroads under federal control in the handling and disposition of over, damaged, refused and unclaimed freight, to establish proper precautionary efforts to conserve the value of such freight to the owners and railroads. In April, 1919, investigations were instituted, and up to the present time have been completed on 93 railroads, and it has developed that in many cases individuals, firms and corporations disposing of this class of freight for the railroads did not make proper returns. Criminal prosecutions are in progress in various cities, and thus far recovery has been secured to the railroads of about $137,000. The completion of these investigations on all federal controlled railroads will bring about a noticeable improvement in the practices of the individual railroads in the handling, recording and disposition of this class of freight."

Canadian Railway Situation

E. W. BEATTY, president of the Canadian Pacific, in a recent article in the Montreal (Que.) Gazette presented an interesting sidelight on the present Canadian railway situation. Mr. Beatty said:

"There are many people who look upon Canadian railways as custodians of magic fortunes which cannot be exhausted. That bookkeeping should be as simple and inexorable in its tale of losses and vanished profits to a railway as it may be to a corner grocer is to these people unthinkable. It apparently does not occur to them that to no public is it more important than to the Canadian public that the good reputation of its railway securities in the world of thrift and investment should be carefully guarded.

"To those, however, who understand these things clearly and who view the matter from the standpoint of broad public interest, it is at once apparent that the Canadian public pays a very low rate for the quality of service rendered, and that a time is rapidly approaching when, if Canadian railway securities are not to be made less desirable to investors than almost any other kind of industrial security, railway rates will either have to go up or railway operating costs go down. Such persons recognize that it is not because the situation of the railways is an easy one that certain companies have been able to show net earnings—very low net earnings compared to the actual cash invested in the industry—but because in the past the shareholders of such companies have been, as

they are today, courageous persons willing to supply the means for constructive enterprises in which no one but themselves had faith, and because, too, their officers have been skilled, resourceful and loyal business men, assisted by staffs filled with the spirit of pride and devotion to their work. This, indeed, is the thing which has made it possible for Canada's railroads to function successfully during the war without making anything like the demands that foreign roads —less efficient in serving their community, yet earning the same rates and paying the same wages—have made up their public exchequers. I do not believe that this strain upon the railways and this tendency to weaken the general reputation of Canadian railway securities should continue. The servant, after all, is worthy of his hire, and railway capital is not less worthy a servant than other forms of capital whose earnings have not been so consistently depressed.

"The net earnings during the war years of those companies which showed net earnings would have been much lower had the Canadian railroads been making expenditures for maintenance which circumstances would have justified but which conditions prevented during that period. These arrears have now to be made up. During 1919 the Canadian Pacific laid 70,000 tons of steel rail. In place of, say, 2,000,000 ties, worth 44c in 1914, the Canadian Pacific laid 4,434,000 ties at 85c per tie. The sensational advance in the rate of railway wages is well known. Further advance may be necessary within the very near future, as indicated by discussions in the United States. The price of coal for locomotives was $3.09 in 1913. Now it is $4.77. The cost of hauling an average train (freight or passenger) one mile has risen from $1,604 in 1913 to $2,494 in 1918. It is higher today. The operating expenses of one mile of line in 1915 were $4,152; in 1918, $7,046, and today they are even greater. On the other hand, railway rates, taking all classes of revenue together, have advanced scarcely 25 per cent.

"I venture to say no other industry in the Dominion can show such moderation."

War Department Commandeers Rails for Railroad Administration

WASHINGTON, D. C.

BECAUSE the steel companies have not been sufficiently interested in turning out rails for the Railroad Administration at $47 a ton, the administration has taken advantage of the fact that the country is still technically at war because the treaty of peace has not been ratified or proclaimed and has induced the War Department to issue orders commandeering 72,500 tons of steel rail to be delivered by March 1, under the powers conferred by Section 120 of the national defense act passed in 1916.

This authorizes the commandeering of munitions or other materials and supplies needed for military purposes or other purposes connected with the military needs, and its exercise at this time is on the theory that all of the troops have not yet been moved and that the railroads under federal control are still being used for military purposes.

Of the total, 36,000 tons are required to be furnished by the Carnegie Steel Company, the Illinois Steel Company and the Tennessee Coal & Iron Company; 16,500 tons by the Bethlehem Steel Company, and the balance, 20,000 tons, by the Midvale Steel & Ordnance Company, which recently offered to roll rail at $57 a ton when the administration was willing to pay only $47. When the Railroad Administration recently attempted to place contracts for rail to be delivered before March 1, the Illinois, Lackawanna and Colorado companies were willing to accept but 42,500 tons. The requisitions for 72,500 tons made by the War Department are in addition to those orders, mentioned in last week's issue.

There has been gossip to the effect that the steel companies preferred other business than rail at the price of $47 a ton, which was the price recommended by the Peek committee last year after a long controversy with the Railroad Administration, and that they have hoped to obtain higher prices after the return of the railroads to private management and the resumption of competitive buying.

The various interpretations that have been used in Washington in answer to the question as to whether or not the war is at an end for various purposes has occasioned some cynical comment. The President recommended a repeal of the war-time prohibition act on the ground that the war was at least over for practical purposes. The Department of Justice held that the wage contract with the coal miners had not yet been abrogated by the termination of the war and the war-time powers of the Fuel Administration were revived to deal with the strike.

Director General Hines held last summer that he would not be justified in exercising his war-time powers to make a general increase in freight rates. But the need of several railroads for rails is such that the Division of Purchases considers that the use of war powers to induce a larger output by the steel companies is warranted. It is said that the steel companies rather resent the use of the technicality but that they are not disposed to make any formal opposition to the order.

Freight Locomotive and Freight Train Costs

THE TOTAL COST of freight train service, including locomotive service, per 1,000 gross ton miles, which had been decreasing each month of 1919 up to and including August, has shown an increase in September, October and November. In November, according to the monthly report of the Operating Statistics Section of the Railroad Administration, it was 122 cents, as compared with 116.1 cents in November, 1918, and as compared with 105.8 cents in October, 1919. In October it was less than for October, 1918. Per locomotive mile and per train mile in November the cost was also greater than in November, 1918. The cost of freight locomotive service per locomotive mile in November was 119.7 cents, as compared with 113.5 cents in November, 1918. In October it was 109.8 cents. The cost of freight train service per train mile in November was 170.3 cents, as compared with 163 cents in November, 1918. In October it was 159.8 cents. The combined figures for all regions and the comparative figures for 1918 are as follows: (Costs for 1918 have been readjusted for back pay, while the costs for 1919 apply to the month of November only, the back pay applicable to previous months having been eliminated.)

	November	
	1919	1918
Cost of locomotive service per locomotive mile (cents)	119.7	113.5
Locomotive repairs	39.4	36.6
Enginehouse expenses	37.4	36.6
Train enginemen	21.0	19.1
Locomotive fuel	46.7	44.8
Other locomotive supplies	3.7	3.6
Cost of train service per train mile	170.3	163.3
Locomotive repairs	54.6	52.7
Enginehouse expenses	8.8	9.4
Locomotive fuel	53.	51.4
Other locomotive supplies	4.2	4.1
Train enginemen	23.9	21.9
Trainmen	27.3	25.8
Train supplies and expenses	7.3	7.1
Cost of total train service per 1,000 gross ton-miles	122.0	116.1
Locomotive repairs	37.2	37.5
Enginehouse expenses	39.2	37.5
Locomotive fuel	38.0	36.6
Other locomotive supplies	3.0	2.9
Enginemen and Trainmen	36.6	34.0
Train supplies and expenses	5.3	5.1

General News Department

Director General Hines left Washington Tuesday evening to go to Louisville to address the Transportation Club (on Thursday) and to inspect the railroads en route; but he postponed his trip to Chicago, where he had expected to confer with the Western regional directors and federal managers on Wednesday, in order not to call the federal managers in from their roads, as they have many cold-weather problems just now. From Louisville Mr. Hines was to go to New York to confer with the eastern regional directors.

Fifteen minutes is sufficient length of time for stealing a thousand dollars' worth of freight; or at least this is the main feature of the report of a robbery on the Boston & Maine near Woburn, Mass., on the night of January 14. A long freight train had stopped on a side track in a lonely locality to wait for a passenger train, and was there only 15 minutes; but in the morning it was discovered that cigars and other property to the value of the sum named had been taken out of one of the cars of the train. Some of the stolen goods had been left in the bushes beside the track.

Employees killed on the Pere Marquette, in 1919, numbered 22, but only six of these cases could be called unavoidable. This fact—that 72.7 per cent of the fatalities could easily have been prevented—is enlarged upon in the safety supervisor's annual bulletin. In only three cases was the question of physical conditions or appliances concerned. Of the 19 fatalities in train service the bulletin says: "This proportion does not prove that train service is naturally so much more hazardous than other service; about four out of every five cases are due solely to unsafe practices which could easily be guarded against. But it does prove that train service is mighty unsafe employment for an unsafe man."

The Material Handling Machinery Manufacturers' Association announces that the convention which was to be held at the Waldorf-Astoria Hotel, New York City, on January 29 and 30, has been postponed, and will be held on February 26 and 27. Manufacturers from any part of the United States will be welcome, and especially makers of overhead cranes, hoists, conveyors, trucks, tractors and trailers. Reservations for the luncheon may be procured from Secretary Z. W. Carter, 35 West 39th street, New York City.

Utah is the title of the latest illustrated booklet issued by the Agricultural Section of the United States Railroad Administration. Governor Simon Bamberger writes the introduction, and he says that agriculture is one of the chief industries of the state. In various parts of the state land in practically all stages of cultivation may be obtained at reasonable prices. The book contains descriptions of the valley of the Great Salt Lake, northeastern Utah, valleys of central Utah, eastern Utah, Utah Basin, southwestern Utah, northwestern and Utah's Dixie (Washington County); with articles on live stock, farming, dairying, poultry, crops under irrigation, dry farming and social life.

William S. Menden, chief engineer of the Brooklyn Rapid Transit Company, has been tried in the Supreme Court of New York, at Mineola, on a charge of manslaughter in connection with the derailment on that road in Brooklyn, N. Y., on November 1, 1918, when 92 passengers were killed; and on Monday last was acquitted by direction of the judge. Three other officers of the company had already been tried on a similar charge, two of them being acquitted, and the third going free because of the disagreement of the jury. It appears that the prosecution expected to convict the chief engineer because he had not installed automatic block signals with a time control element such as are in use on the Interborough Rapid Transit Company at certain important stations. The judge said that no man could reasonably have been expected, prior to this accident, to exercise the foresight which would have been requisite to install such a device. The derailment, which was caused by excessive speed on a sharp curve, was immediately due to the error or incompetence of an inexperienced motorman. Testimony was presented at the trial to the effect that 23 miles an hour had been proved a safe rate of speed over the curve.

Contracts Executed

The Railroad Administration has executed compensation contracts with the Northwestern Pacific for $1,338,000; the San Antonio & Aransas Pass for $456,684; the Chicago, Rock Island & Pacific for $15,880,601; the Minneapolis & St. Louis for $2,812,008; the Galveston, Houston & Henderson for $127,366, and the Hamilton Belt for $7,040.

Charles Warren Hunt Elected Secretary Emeritus

Charles Warren Hunt, secretary of the American Society of Civil Engineers, has resigned from that position and has been appointed secretary emeritus of the society and granted six months' leave of absence. No action has as yet been taken by the Board of Direction in the matter of naming a successor to Mr. Hunt and in the interim Col. H. S. Cracker will serve as acting secretary.

Correction

In the abstract of the report of the Automatic Train Control Committee published in the *Railway Age* of January 16, on page 232 the name of the Nevens-Wallace Train Control Company—electrically controlled mechanical trip type, was omitted from the list of devices found available by the committee for further test and the description of this type was incorrectly printed after the name of the National Safety Appliance Company, whose device is of the induction type.

Disastrous Collision Near North Bay

In a rear collision of west bound passenger trains on the Canadian Pacific at Corbell, about eleven miles east of North Bay, Ont., on Sunday, January 25, eight or more persons (seven passengers and a sleeping car conductor) were killed and 21 injured. The temperature at the time of the collision was about 30 degrees below zero, and the leading train, through express No. 1, had been stalled by some cause due to the cold weather, and the rear car was run into and crushed by the second section of the same train. Newspaper reports indicate that torpedoes had been put on the rails for the protection of the standing train, but that they were not heard by the engineman of the second section.

California Railroad Commission Recommends New Terminals at Los Angeles

The Railroad Commission of California has issued a report, made by its engineers, covering the results of a two-years' study, which recommends the construction in Los Angeles of a new union passenger station, new freight station, elimination of grade crossings and other improvements estimated to cost altogether $32,233,445. The proposed location for the passenger terminal is on a site extending from Commercial street to Alhambra avenue along the east side of North Main street, and the estimated cost is $10,000,000. The union freight station to cost $2,500,000, would be built at the site of the Atchison, Topeka & Santa Fe freight yard. A subway would be required from the Pacific Electric station at Sixth and Main streets, along Main street to and under the new passenger terminal, and (changing to an elevated roadway) to and across Alice street bridge to Brooklyn avenue. This would cost $2,500,000. Elimination of all important grade crossings on the banks of Los Angeles river, from North Broadway to Butte street would cost $4,000,000; and the elimination of 61 street crossings, eight electric railway

crossings and two steam railroad crossings between Los Angeles and Pasadena, would cost $6,700,000.

The report recommends a joint railroad between Los Angeles and Pasadena to be used by the Atchison, Topeka & Santa Fe and the Los Angeles and Salt Lake.

Statistics of Safety Committees' Work

H. M. Mayo, superintendent of safety of the Southern Pacific and other lines in Texas reports that in the month of December Safety Committee members reported 149 violations of safety rules by employees, each of whom was warned of the danger he had incurred. These cases are classified as follows:

	Violations
Riding engine pilots	Nine
Adjusting drawheads with foot (car moving)	Fourteen
Failing to use blue flag	Six
Breaking air hose	Six
Lining couplers (cars moving)	Seven
Chocking moving car	One
Employees boarding moving cars	Nine
Others boarding moving cars	Ten
Using open lights at oil tanks	Three
Jacks improperly block and defective	Twelve
Using burred tools	Fifteen
Failure to use goggles at grinding wheels	Thirteen
Lounging under cars	Eight
Throwing loose boards with nails	Sixteen
Crossing between moving cars	Eleven
No protection from flying rivets	Five
Stepping on foot board of approaching engines	Four

"What argument can be put forward in defense of this situation," says Mr. Mayo. "Are not practices such as these actually criminal? Life ought to be worth something, yet you gamble with it as though it could be bought on the bargain counter."

Chemists Seeking Work

Of the 5,400 chemists who served the country in the War Department during the great war a considerable number are still looking for suitable occupation, and Major General William L. Sibert, Director of Chemical Warfare Service, appeals to employers needing chemists to consider these men. In his department, Seventh and B streets, Washington, a clearing house has been established and the qualifications of these chemists are on record there.

Major Frederick M. Crossett, chief of the Relations Section of the Chemical Warfare Service, calls attention to the peculiar value to their country of the service rendered by these men. Many of them made themselves voluntary prisoners. They agreed to live within the stockades surrounding the works in which were carried on the secret processes worked out by American chemists that gave the United States an immeasurable superiority over Germany in chemical warfare. They gave up the chance to go abroad. They worked apart and, from the nature of the case, the public for two years knew nothing of them. They remained at their posts until after the armistice was signed.

Information can be had from either General Sibert or Major Crossett, Unit F, Floor 3, Seventh and B streets N. W., Washington.

Director General to Give Answer on Wage Demands

The wage demands of the railroad labor organizations, many of which have been pending since last summer and fall, will be discussed at a conference with Director General Hines in Washington on February 2 or 3 next week. As it is regarded as certain that he will not consider it possible in the short remaining period of federal control to comply with the large demands that they have made, or to do anything more than make some readjustments for the purpose of maintaining the proper relationship between classes of employees, the developments from the meeting as to the attitude that will be assumed by the labor leaders are being looked forward to with interest.

The Brotherhood of Railroad Trainmen announced last week its intention of pressing the Railroad Administration for a definite answer on its demand for a general wage increase filed on July 1, last year. W. G. Lee, president of the brotherhood, telegraphed to Director General Hines for an appointment for January 26 and called a meeting of his committeemen and grand lodge officers at Washington on that date, but Mr. Hines replied that he was leaving on that day for an inspection trip and suggested that another date be arranged after February 1. At the same time Mr. Hines invited the officers of the other labor organizations to a conference so that he could talk to them all at once. Most of the 14 organizations have requests for general increases pending, although the engineers and conductors have not filed any definite demands. Hearings have been held by the Board of Railroad Wages and Working Conditions and reports have been made to the board by the director general, but under his instructions they have been confined to the question of readjustments of alleged inequalities.

Farmers' and Labor Unions' Committees Urge Two More Years of Federal Control

A delegation of representatives of labor and farmers' organizations called at the White House on January 27 and after making some speeches to Secretary Tumulty, left a letter addressed to the President, urging a two-year extension of federal control of the railroads. The delegation included several of those who gave the President similar advice on December 17 shortly before he issued his proclamation returning the railroads as of March 1.

In the letter the delegates declare that the Congressional committee is in such a hopeless tangle over the Cummins and Esch bills that it will be impossible to reach a practical solution of the railway problem before March 1.

"On December 17, last," reads the letter, "representatives of leading organizations of farmers, of the American Federation of Labor and state federations of labor, of the railway brotherhoods, and shop crafts, presented to you a letter strongly urging that the period of government operation be continued for at least two years, so that there will be a more thorough and more consistent trial of government operation. * * * In the six weeks since then the sentiment throughout the country has been continuously increasing in favor of this two-year extension until we can accurately state that this is the preponderant desire of the farmers and of organized labor forces of most of the states of the Union. This, too, is the sentiment of the unorganized farmers and workers of America.

"The return of the railroads will involve an increase in freight rates of 25 to 40 per cent, which mean an increase in the cost of living, as estimated by your director general of railroads, of at least $4,000,000,000 a year. This will be nothing short of a national calamity.

The farmers' organizations were those represented by George P. Hampton and Benjamin C. Marsh.

Safety Instruction in Schools

The National Safety Council, Ralph C. Richards, president, has issued a pamphlet, which railroads are asked to buy at five cents each and to circulate among school authorities, wherein will be found a short argument advocating the introduction, in public and parochial schools, of a book by Dr. E. C. Payne, containing an attractive scheme for teaching safety habits to children and youths. Fred Meyers, Wabash Railroad, St. Louis, Mo., chairman of the steam railroad section of the National Safety Council, in a letter to railroads which are members of the council, points out the value of safety work in schools already done by many railroads and the useful results to be expected from further activity in this direction.

A syllabus for teachers, including a complete outline of a plan for teaching, has been prepared from Dr. Payne's book, and can be had at nine dollars a dozen copies.

Dr. Payne's method includes the incorporation of safety questions into ordinary subjects, arithmetic, language, etc., and the encouragement of the children of a school to organize themselves into an association with the high ideal of being responsible for the welfare of the community in which they live. A sample question, under the head of arithmetic, reads: "If the population of the United States was 91,972,266 in 1910, and the accidental deaths are 54,300, to what would the population of the United States be reduced by accidents alone in ten years if population did not increase in other ways?" In the teaching of drawing, the pupils are called upon to make pictures of children doing dangerous things, and they attach to these pictures suitable and instructive "slogans." Through reading classes, pupils are led to convey to their parents all sorts of useful information about prevention of accidents. In composition, pupils assigned to these subjects are found to make unexpectedly rapid progress in language. In Cleveland, Ohio, pupils have learned, and have taught, important lessons in safety through amateur theatricals.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF NOVEMBER, 1919

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses					Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance of									
		Freight.	Passenger.	Total (Inc. misc.)	Way and structures.	Equipment.	Traffic.	Transportation.	General.	Total.					
Alabama & Vicksburg	141	$164,971	$58,892	$243,222	$35,887	$53,668	$3,802	$84,990	$10,526	$191,521	78.74	$51,702	$11,417	$40,234	$16,422
Alabama Great Southern	312	814,471	189,548	1,069,829	84,028	263,587	13,394	317,275	17,088	702,436	65.65	367,393	15,294	351,822	249,092
Ann Arbor	301	366,317	59,298	448,874	50,507	96,211	4,648	211,921	9,723	373,026	83.10	75,847	16,700	59,142	—14,010
Arizona Eastern	377	209,902	53,219	288,144	41,620	47,834	1,737	99,184	16,809	209,580	72.73	78,564	58,694	19,722	—79,870
Atchison, Topeka & Santa Fe	8,665	12,364,728	4,054,311	17,564,713	2,050,332	3,592,469	143,958	5,739,494	237,856	11,692,685	66.56	5,872,028	899,614	4,970,078	1,046,316
Atlanta & West Point	93	157,026	91,550	278,037	34,344	46,475	3,342	101,373	11,709	201,429	72.44	76,609	1,000	75,599	3,495
Atlanta, Birmingham & Atlantic	639	259,488	81,125	373,989	98,448	126,102	9,743	224,911	14,480	473,751	126.67	—99,761	16,000	—116,252	—67,963
Atlantic City	177	143,777	130,288	292,773	87,198	30,167	1,246	174,492	1,068	294,242	100.50	—1,470	22,086	—23,561	—202,946
Atlantic Coast Line	4,879	3,617,761	1,337,921	5,342,483	806,969	1,160,155	75,070	2,356,722	111,209	4,531,003	84.81	811,481	200,000	609,102	—4,023
Baltimore & Ohio Chicago Terminal	90	.....	3	205,982	34,980	36,067	1,040	132,509	7,321	217,426	105.56	—11,444	26,542	—37,986	79,173
Baltimore & Ohio	5,151	11,616,554	2,220,908	15,346,512	1,884,426	4,858,282	148,796	6,636,673	342,389	14,052,912	91.57	1,293,599	481,144	811,852	574,202
Baltimore, Chesapeake & Atlantic	87	90,105	29,622	126,277	11,762	22,406	1,027	77,533	3,542	116,270	92.07	10,007	4,025	5,982	24,651
Bangor & Aroostook	632	440,887	93,353	562,042	121,452	154,461	3,420	210,322	11,103	507,725	90.33	54,318	23,000	31,314	—55,536
Beaumont, Sour Lake & Western	118	93,418	24,780	123,462	24,798	25,359	4,345	50,607	4,994	110,102	89.17	13,361	2,700	10,603	—30,913
Belt Railway Co. of Chicago	31	.....	.....	322,111	30,271	54,124	418	223,798	7,366	315,977	98.07	6,134	15,682	—9,549	—7,192
Bessemer & Lake Erie	217	719,361	38,758	782,877	112,766	365,715	9,764	291,937	19,538	806,303	102.99	—23,426	21,500	—44,952	— 211,802
Bingham & Garfield	37	143,364	2,026	148,155	34,759	41,884	1,126	37,820	3,699	119,946	80.95	28,209	11,799	16,410	—79,367
Birmingham Southern	29	34,642	.....	42,482	5,288	5,555	753	30,281	3,035	44,912	105.72	—2,430	1,999	—4,429	—53,366
Boston & Maine	2,258	4,117,560	1,676,222	6,467,373	710,424	1,518,844	36,894	3,324,523	135,467	5,770,812	89.22	696,561	199,030	497,449	886,406
Buffalo & Susquehanna	296	59,129	6,434	70,748	40,574	105,790	3,904	41,543	9,367	201,177	284.35	—130,430	3,250	—133,683	—58,786
Buffalo, Rochester & Pittsburgh	589	651,672	133,592	838,928	206,781	474,446	13,815	494,869	31,474	1,223,536	145.84	—384,608	10,000	—394,622	—267,998
Canadian Pacific Lines in Maine	233	132,731	48,922	195,282	40,251	57,280	2,170	124,731	3,075	227,405	116.44	—32,123	18,300	—50,423	—55,235
Carolina, Clinchfield & Ohio	282	457,401	32,238	503,791	71,404	144,497	9,252	171,172	12,341	408,450	81.07	95,340	16,300	79,033	—22,905
Central New England	301	498,814	25,121	561,220	103,990	110,962	3,467	247,756	15,419	481,594	85.81	79,625	16,000	63,373	168,090
Central of Georgia	1,918	1,163,936	544,219	1,901,123	462,691	396,085	32,925	803,755	61,143	1,753,040	92.21	148,082	87,546	58,184	—280,432
Central of New Jersey	685	2,745,645	710,996	3,953,430	475,737	1,177,111	29,804	1,890,039	73,650	3,673,128	92.90	280,302	349,346	—69,048	17,855
Central Vermont	411	376,824	89,291	511,084	76,283	143,475	9,176	256,327	16,964	505,512	98.91	5,571	17,400	—11,958	70,639
Charleston & Western Carolina	342	215,213	54,911	290,285	58,385	57,737	6,183	137,878	5,492	265,676	91.52	24,609	9,364	15,235	—38,652
Chesapeake & Ohio	2,516	4,013,080	911,770	5,354,030	982,628	1,994,401	50,514	2,460,413	108,248	5,625,747	105.07	271,717	158,400	—430,324	—2,573,207
Chicago & Alton	1,050	1,124,155	513,820	1,769,532	348,787	652,370	22,281	999,403	48,545	2,087,093	117.94	—317,560	61,000	—378,966	—596,821
Chicago & Eastern Illinois	1,131	1,118,084	395,518	1,680,567	327,164	794,313	16,916	805,457	50,553	2,005,494	119.33	—324,927	56,500	—381,983	—664,405
Chicago & Erie	269	719,245	62,670	884,407	88,070	153,913	10,140	448,629	25,291	730,870	82.62	153,537	53,000	100,532	—210,131
Chicago & North Western	8,090	8,113,315	2,883,674	12,130,562	1,531,112	2,880,824	72,301	5,880,625	260,927	10,725,664	88.41	1,404,898	475,000	929,314	—341,062
Chicago, Burlington & Quincy	9,371	8,947,716	2,756,328	12,796,377	1,535,604	3,046,159	83,026	5,394,875	356,350	10,512,776	82.15	2,283,601	466,217	1,813,859	—1,099,284
Chicago Great Western	1,496	1,313,778	450,188	1,913,829	276,145	444,239	24,844	899,233	46,968	1,703,994	89.04	209,835	54,975	154,776	136,051
Chicago, Indianapolis & Louisville	657	666,460	239,917	1,003,316	114,930	335,279	13,458	542,075	26,468	1,044,760	104.13	—41,444	47,440	—89,019	—133,391
Chicago Junction	12	.....	.....	335,099	44,485	52,783	122	246,808	6,244	350,442	104.57	—15,343	2,128	—17,472	—1,798
Chicago, Milwaukee & St. Paul	10,658	9,332,210	2,150,003	12,723,080	1,833,143	2,901,693	61,853	5,966,088	332,201	11,228,770	88.25	1,494,309	559,148	865,186	694,527
Chicago, Peoria & St. Louis	247	82,527	27,553	121,361	32,206	73,170	1,823	89,310	7,980	204,455	168.47	—83,094	6,100	—89,194	—20,357
Chicago, Rock Island & Gulf	463	362,826	96,683	493,822	68,247	61,465	6,790	236,388	12,445	386,547	78.27	107,275	19,864	87,431	—19,141
Chicago, Rock Island & Pacific	7,594	6,476,532	2,538,374	9,649,589	1,693,114	2,480,626	100,064	4,500,467	209,504	9,024,125	93.51	625,464	538,835	85,503	—372,452
Chicago, St. Paul, Minneapolis & Omaha	1,749	1,832,153	653,723	2,637,757	281,640	493,351	21,183	1,245,375	62,413	2,117,697	80.28	520,060	114,673	404,317	34,171
Chicago, Terre Haute & S. E	374	104,571	20,892	135,169	59,080	130,322	3,549	96,935	9,026	299,936	221.90	—164,767	14,500	—179,267	—221,877
Cincinnati, Lebanon & Nor	76	100,777	9,710	126,913	17,408	22,539	1.132	50,564	1,897	93,541	73.90	33,372	7,771	25,594	21,027
Cincinnati, Indianapolis & Western	321	223,508	49,675	297,931	57,199	128,528	6,619	140,706	13,835	347,864	116.75	—49,934	4,561	—64,363	—31,957
Cincinnati, New Orleans & Texas Pacific	337	1,317,535	238,944	1,635,010	355,166	574,440	22,629	808,395	31,721	1,801,635	110.19	—166,625	35,547	—204,254	—376,379
Cincinnati Northern	251	202,404	17,711	227,737	30,087	74,341	1,854	95,297	4,497	206,075	90.48	21,662	13,400	8,099	—44,283
Cleveland, Cincinnati, Chi. & St. Louis	2,408	4,089,239	1,404,049	6,061,072	788,458	1,337,980	72,150	2,930,140	107,696	5,278,028	87.08	783,044	220,000	561,414	—850,905
Colorado & Southern	1,099	719,458	203,279	990,237	150,252	294,930	8,956	409,883	48,736	919,923	92.88	70,315	47,000	23,168	—347,666
Colorado & Wyoming	41	9,006	1,347	13,614	4,802	7,069	130	12,028	3,435	27,465	201.73	—13,850	4,000	—17,850	—35,653
Cumberland Valley	163	305,362	69,978	412,248	65,132	108,867	6,285	119,007	11,773	311,793	75.63	100,455	9,887	90,563	—208,442
Delaware & Hudson	875	2,399,230	238,679	2,818,936	354,838	917,725	16,591	1,323,344	110,978	2,754,413	97.71	64,523	87,000	—22,859	—198,871
Delaware, Lackawanna & Western	956	4,500,535	955,778	6,140,294	733,154	1,235,980	37,989	2,607,745	117,063	4,792,067	78.00	1,348,227	318,427	1,029,573	—464,650
Denver & Rio Grande	2,594	2,082,505	559,126	2,829,991	387,467	697,808	22.942	1,047,098	70,369	2,264,559	80.02	565,432	140,000	425,161	—118,142
Denver & Salt Lake	255	224,301	30,076	261,474	66,424	94,112	750	117,222	5,564	284,071	108.64	—22,597	9,000	—31,611	—240,629
Detroit & Mackinac	381	112,754	35,036	157,932	11,344	39,303	1,693	66,139	5,982	123,972	78.49	33,960	5,886	28,074	118,791
Detroit & Toledo Shore Line	61	210,216	.....	210,934	38,912	5,523	1,635	72,468	9,212	127,752	60.56	83,182	7,900	75,282	—3,543
Detroit, Toledo & Ironton	454	294,724	13,248	322,773	80,836	108,176	4,730	170,565	22,676	387,019	119.90	—64,246	9,043	—73,290	18,006
Duluth & Iron Range	292	370,530	25,211	435,417	143,238	119,669	446	185,814	15,363	464,779	106.74	—29,362	22,429	—52,040	—25,785
Duluth, Missabe & Northern	412	895,548	46,144	1,035,879	218,105	171,832	3,093	413,418	28,520	836,586	80.76	199,293	51,278	148,015	—51,682
Duluth, South Shore & Atlantic	598	274,995	107,823	415,636	58,380	78,176	4,866	237,972	8,581	393,912	94.77	21,724	20,000	1,685	—62,120
Duluth, Winnipeg & Pacific	178	129,709	31,010	164,123	34,443	27,164	2,532	69,647	8,587	142,433	86.78	21,689	12,777	8,912	—40,675
East St. Louis Connecting	3	.....	.....	89,109	13,503	—7,639	285	113,263	3,145	122,571	137.55	—33,461	2,544	—36,005	19,976
El Paso & Southwestern	1,027	987,540	196,282	1,249,360	232,718	216,756	9,675	338,494	26,855	833,753	66.73	415,608	100,000	315,607	11,829
Elgin, Joliet & Eastern	831	981,126	4	1,186,784	168,871	343,429	6.405	589,468	24,014	1,131,693	95.35	55,091	48,850	6,181	—748,578
Erie	1,989	5,786,104	989,858	7,627,120	833,560	2,355,209	61,175	3,739,933	194,514	7,233,686	94.84	393,434	376,000	17,017	—666,580
Florida East Coast	764	537,187	222,443	864,562	138,711	148,517	9,667	332,122	17,764	655,090	75.77	209,472	28,882	180,568	213,596
Fonda, Johnstown & Gloversville	88	27,506	65,304	97,213	10,662	8,123	531	43,085	5,740	68,140	70.09	29,073	4,900	24,173	1,981
Fort Smith & Western	253	109,356	32,284	150,248	27,322	38,283	4,030	55,014	7,199	132,987	88.51	17,260	5,000	11,825	—4,527
Ft. Worth & Denver City	454	617,868	360,615	1,020,521	107,385	228,580	6,958	281,458	26,318	653,989	64.08	366,532	34,379	332,076	115,917
Ft. Worth & Rio Grande	235	86,624	68,754	166,292	29,661	24,800	2,187	60,011	5,898	122,557	73.68	43,734	2,983	40,745	52,577

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF NOVEMBER, 1919—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (Inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
Galveston, Harrisburg & San Antonio	1,181	$1,548,867	$441,501	$2,083,433	$221,189	$394,142	$17,419	$623,549	$54,999	$1,326,557	63.67	$756,875	$52,892	$703,555	$570,860
Galveston Wharf	13	.....	.....	128,115	29,979	1,234	.....	29,650	2,293	79,767	62.26	48,348	12,500	35,849	38,394
Georgia	328	492,414	149,967	690,621	75,933	106,752	8,189	286,725	17,222	495,022	71.67	195,599	5,950	189,646	—50,532
Georgia & Florida	348	58,718	23,792	89,443	48,559	18,393	2,343	58,787	6,029	134,112	149.94	—44,669	4,200	—48,869	—41,007
Georgia Southern & Florida	402	220,899	118,122	366,149	56,134	101,403	6,481	193,791	11,755	370,222	101.11	—4,072	28,934	—33,028	—64,732
Grand Rapids & Indiana	569	524,317	166,973	744,378	67,982	195,386	11,758	364,588	22,248	663,519	89.13	80,860	25,951	54,875	1,769
Grand Trunk Western	1,001	1,433,184	284,671	1,878,972	238,958	308,160	12,084	980,125	75,857	1,622,616	86.35	256,357	59,273	197,022	—173,429
Grand Trunk Lines in New England	172	221,956	35,172	290,357	130,618	85,182	1,937	104,862	8,957	348,219	119.92	—57,862	14,500	—72,362	5,292
Great Northern	8,176	6,939,998	1,646,559	9,418,965	1,424,537	2,342,013	58,262	4,241,461	152,587	8,340,163	88.54	1,078,802	1,052,351	25,184	—1,945,676
Green Bay & Western	252	97,580	18,036	123,080	15,122	27,451	1,042	42,705	1,696	88,016	71.51	35,064	4,420	30,644	27,979
Gulf & Ship Island	307	165,953	41,939	225,738	64,240	60,489	5,724	90,255	9,271	230,443	102.08	—4,705	22,970	—27,880	—35,737
Gulf, Colorado & Santa Fe	1,937	1,763,987	560,207	2,458,186	579,356	290,601	19,065	867,723	50,717	1,804,123	73.39	654,731	163,153	490,731	54,357
Gulf, Mobile & Northern	467	208,496	50,566	271,342	68,565	67,502	7,674	126,099	11,462	276,443	101.87	—115,200	11,707	—171,536	18,297
Hocking Valley	350	633,883	97,991	796,447	107,040	371,661	6,391	404,267	19,885	911,647	114.46	—5,100	56,336	—16,872	—284,716
Houston & Texas Central	847	764,469	248,627	1,075,362	149,496	175,900	5,503	364,816	21,853	717,746	56.74	357,616	34,459	322,910	205,127
Houston, East and West Texas	190	162,380	48,732	221,718	33,775	28,214	1,145	95,779	4,011	162,926	73.48	58,793	6,248	52,473	—1,099
Illinois Central	4,799	5,702,321	2,035,821	8,463,829	1,884,075	2,662,666	87,425	3,768,635	215,854	8,668,763	102.42	—204,934	488,267	—696,651	—1,821,938
Indiana Harbor Belt	116	.....	.....	550,015	70,778	94,973	1,904	395,926	17,251	580,832	105.60	—30,817	11,059	—41,876	28,432
International & Great Northern	1,159	1,042,651	317,255	1,451,545	297,453	353,106	15,514	552,135	45,106	1,273,018	87.70	178,526	155,446	—77,380	58,120
Kanawha & Michigan	176	211,288	51,800	275,226	64,332	121,300	2,151	132,305	13,561	333,649	121.22	—58,422	22,882	18,958	—151,943
Kansas City, Mexico & Orient	272	199,066	18,856	224,767	37,545	54,925	6,378	37,409	11,692	197,483	87.86	27,284	6,250	21,022	80,665
Kansas City, Mexico & Orient of Texas	465	153,744	24,672	184,057	38,958	62,193	16,326	445,901	11,269	209,853	114.02	—25,796	5,000	—30,801	—5,688
Kansas City Southern	774	940,150	221,293	1,282,704	166,056	280,395	.....	91,055	35,480	941,731	73.41	340,973	61,250	279,510	262,592
Kansas City Terminal	27	.....	.....	112,123	27,504	24,753	15,963	53,805	1,507	109,945	98.05	2,178	41,625	—39,447	—32,913
Lake Erie & Western	902	696,866	61,645	803,986	151,426	246,517	.....	366,654	24,708	805,269	100.16	—1,283	46,700	—48,053	—139,767
Lehigh & Hudson River	96	203,057	4,750	217,525	29,996	44,632	2,186	110,525	6,072	193,411	88.91	24,113	7,866	15,650	—24,391
Lehigh & New England	234	363,665	2,504	394,742	55,787	73,527	2,587	121,883	9,557	263,341	66.71	131,401	10,860	120,541	25,697
Lehigh Valley	1,435	4,677,005	526,054	5,705,823	997,421	1,754,838	22,054	2,460,547	111,989	5,367,192	94.06	338,631	163,000	175,186	—604,776
Long Island	398	585,552	950,072	1,747,113	234,333	472,314	12,153	1,092,722	51,473	1,880,240	107.61	—133,127	94,428	—228,540	—218,294
Los Angeles & Salt Lake	1,168	1,131,544	386,969	1,623,962	132,606	190,763	16,469	563,048	28,640	977,816	60.21	646,145	54,640	591,084	326,749
Louisiana & Arkansas	302	167,704	51,788	226,079	57,446	35,701	3,668	78,748	7,355	182,729	80.82	43,351	26,210	17,083	4,609
Louisiana Ry. & Nav. Co	349	261,019	37,701	308,509	84,370	75,521	3,836	117,329	8,651	289,707	93.91	18,803	18,000	803	—15,932
Louisiana Western	207	243,042	106,679	370,315	30,978	60,253	4,518	83,287	10,223	191,354	51.67	178,961	8,778	170,158	65,151
Louisville & Nashville	5,013	6,336,480	1,947,341	8,825,435	1,521,248	2,453,110	128,804	3,782,126	196,942	8,135,277	82.17	690,158	260,714	429,327	—244,761
Louisville, Henderson & St. Louis	199	143,065	59,007	215,001	44,954	29,999	3,884	87,316	7,842	173,995	80.92	11,005	4,000	36,947	—37,769
Maine Central	1,216	989,714	387,819	1,494,711	234,443	371,717	11,437	743,294	34,143	1,396,512	93.43	98,199	80,680	17,446	38,973
Maryland, Delaware & Virginia	82	75,840	26,208	105,546	24,789	43,064	935	70,921	2,163	141,871	134.41	—36,325	1,908	—38,233	21,597
Michigan Central	1,861	4,666,279	1,591,534	7,000,358	759,011	1,510,921	68,424	2,847,357	118,085	5,384,565	76.91	1,615,793	285,000	1,330,451	—181,222
Midland Valley	391	226,410	93,526	334,259	84,822	63,815	4,118	146,598	14,492	313,846	93.89	20,412	6,786	13,615	—31,469
Mineral Range	101	63,580	426	67,121	13,063	16,260	338	31,135	895	61,691	91.91	5,430	3,500	1,930	—15,162
Minneapolis & St. Louis	1,646	856,682	205,610	1,130,817	183,660	329,420	11,113	608,971	29,925	1,160,938	102.66	—30,121	52,991	—83,231	—55,680
Minneapolis, St. Paul & Sault Ste. Marie	4,243	2,876,933	708,865	3,847,139	490,171	687,154	28,312	1,771,013	79,651	3,069,842	79.79	777,297	211,580	565,555	240,183
Minneapolis & International	194	48,037	35,061	88,363	10,331	20,770	500	41,385	3,179	76,166	86.19	12,198	7,790	4,619
Minneapolis Central	164	61,266	25,528	90,524	60,018	41,388	1,328	37,984	6,449	147,168	162.55	—56,644	4,405	—59,516	—61,845
Mississippi Central	365	82,539	39,250	131,245	55,792	43,649	4,908	73,620	12,298	190,217	144.93	—58,972	2,800	—65,243	—42,079
Missouri & North Arkansas	1,713	2,093,874	649,873	2,932,146	504,283	963,168	30,061	1,211,447	86,352	2,809,143	95.80	123,003	6,241	—9,128	—802,836
Missouri, Kansas & Texas	1,796	1,521,548	740,745	2,432,996	520,497	436,201	27,157	1,407,675	92,276	2,501,968	102.83	—68,971	131,084	—152,712	—374,848
Missouri, Kansas & Texas of Texas	332	85,684	20,919	114,404	78,569	80,699	2,467	79,419	7,622	249,095	217.73	—134,691	83,094	—143,307	—113,759
Missouri, Oklahoma & Gulf	7,301	5,724,599	1,722,244	8,038,351	1,917,112	1,804,762	82,967	3,670,696	222,448	7,724,538	96.09	313,813	277,374	34,097	—1,540,468
Missouri Pacific	997	1,118,243	180,386	1,376,663	271,790	430,732	28,247	669,197	46,422	1,447,260	105.12	—70,597	45,000	—115,809	—52,492
Mobile & Ohio	108	329,743	22,941	359,431	80,619	34,211	747	93,514	7,739	216,830	60.32	142,602	—5,000	147,596	97,039
Monongahela	6	.....	1,428	245,807	24,548	41,311	559	76,182	7,315	149,916	60.98	95,892	2,097	93,796	82,173
Monongahela Connecting	56	14,752	170,270	21,881	20,244	54,194	1,313	16,899	7,211	100,331	45.85	—78,450	1,527	—79,977	—43,710
Montour	400	537,911	405,545	751,934	77,079	154,571	8,150	265,683	19,427	526,906	70.07	225,028	29,796	195,148	—17,899
Morganis, Louisiana & Texas	1,247	1,436,338	157,842	1,950,824	336,102	522,114	44,874	775,268	43,753	1,727,679	88.56	223,144	85,000	137,703	—170,366
Nashville, Chattanooga & St. Louis	168	142,421	9,982	157,842	30,154	30,720	889	42,890	5,314	110,167	69.79	47,675	10,758	36,917	—51,770
Nevada Northern	195	415,645	103,152	585,717	116,086	166,108	8,339	231,621	14,511	541,112	92.47	44,606	21,727	22,726	64,907
New Orleans & N. E.	284	133,432	41,709	184,379	36,455	46,831	3,726	90,331	11,060	188,786	91.30	—4,407	10,000	—19,512	—53,428
New Orleans Great Northern	191	146,874	28,509	182,120	47,201	43,859	6,095	59,741	6,907	166,282	78.85	15,838	15,069	5,797	10,731
New Orleans, Texas & Mexico	6,075	15,277,123	6,751,813	25,642,731	2,494,894	5,654,633	214,970	10,737,047	620,631	20,221,830	89.97	5,420,901	1,094,026	4,323,134	—2,311,957
New York Central	574	1,533,936	83,649	1,684,850	201,540	383,937	25,621	845,126	54,929	1,515,905	83.56	1,566,269	392,000	1,170,341	1,714,422
New York, Chicago & St. Louis	1,965	4,505,991	3,747,993	9,527,248	1,234,493	1,780,142	34,549	4,418,549	324,099	7,960,979	107.24	—56,647	30,000	—86,693	123,571
New York, New Haven & Hartford	569	521,629	118,391	781,753	164,543	213,471	9,732	428,469	22,184	838,400	94.04	44,924	23,806	21,041	—31,830
New York, Ontario & Western	121	613,112	86,112	754,946	77,843	263,220	9,271	326,220	11,749	710,022	103.47	—11,615	—40,700	—52,331	—130,091
New York, Philadelphia & Norfolk	135	240,025	58,786	333,720	59,143	55,751	1,479	220,602	8,362	345,334					
New York, Susquehanna & Western	.....	.....	.....	.....	.....	.....	.....	.....	56,119	.....					—42,455
Newburgh & South Shore	7	.....	.....	728,486	84,899	12,719	21,759	39,290	2,552,223	3,661	94,259	111.02	—9,360	5,564	—14,923	—1,438,859
Norfolk & Western	2,088	5,795,809	142,900	6,872,061	1,197,121	2,180,896	123,686	9,926	276,047	114,551	6,107,074	88.86	764,986	260,000	504,129	—81,363
Norfolk Southern	906	344,232	.....	523,511	119,699	.....	.....	.....	.....	21,264	550,904	105.23	—27,393	16,000	—43,765	
Northern Pacific	6,626	6,987,527	1,698,472	9,410,240	1,128,640	1,682,702	89,725	5,550,915	192,973	6,775,534	72.00	2,634,705	716,721	1,916,676	—1,416,826
Northwestern Pacific	538	380,915	180,070	623,175	136,330	85,847	4,878	247,377	13,884	490,546	78.71	132,629	25,647	106,971	62,979
Northern Alabama	112	102,555	14,005	118,763	20,765	6,957	1,587	45,705	1,752	76,765	65.18	41,998	3,801	38,198	17,869

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF NOVEMBER, 1919—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance of										
		Freight.	Passenger.	Total (inc. misc.)	Way and structures.	Equipment.	Traffic.	Transportation.	General.	Total.					
Oregon Short Line	2,347	$2,685,053	$575,092	$3,480,564	$308,923	$424,747	$17,133	$1,016,108	$85,949	$1,912,569	54.95	$1,567,995	$258,145	$1,309,706	$274,906
Oregon-Washington R. R. & Nav. Co.	2,070	1,850,107	551,429	2,595,920	465,288	434,756	38,273	1,069,299	96,784	2,123,736	81.83	472,184	113,614	358,026	131,365
Panhandle & Santa Fe	772	589,084	144,792	764,259	69,384	216,767	4,107	290,310	15,492	595,796	77.95	168,463	20,895	147,568	176,314
Pennsylvania Railroad, Western	1,754	5,944,078	1,697,980	8,444,196	1,373,586	3,004,189	77,016	3,726,310	195,914	8,456,010	100.14	—11,813	512,201	—525,248	1,203,891
Pennsylvania Railroad, Eastern	5,371	16,814,972	6,881,472	26,928,303	5,635,300	10,549,982	252,873	14,431,286	293,316	32,278,241	119.86	—5,349,938	891,722	—6,250,719	—7,699,052
Peoria & Pekin Union	19	27,444	3,042	101,555	16,057	42,551	795	74,562	4,823	138,788	136.66	—37,232	9,500	—46,732	—9,023
Pere Marquette	2,230	2,613,306	483,797	3,404,145	343,304	699,331	30,055	1,395,907	74,114	2,550,673	74.92	853,472	62,021	791,415	142,226
Perkiomen	42	90,407	8,037	101,811	6,405	4,637	13	36,624	319	48,017	47.16	53,794	51,427	52,367	—18,796
Philadelphia & Reading	1,127	4,399,015	956,989	5,725,498	622,797	1,723,783	40,599	3,124,638	143,812	5,625,563	99.12	49,934	143,228	—93,599	—862,206
Philadelphia, Bethlehem & N. E.	71	.....	.....	73,013	11,804	10,703	408	58,207	1,115	82,236	112.63	—9 224	1,110	—10,334	—59,199
Pittsburgh & Lake Erie	224	1,534,155	236,826	1,979,770	262,179	913,691	14,168	794,946	49,128	2,036,152	102.84	—56,381	72,000	—128,385	—892,104
Pittsburgh & West Virginia	63	143,080	11,351	165,501	42,970	65,073	1,403	53,591	6,268	177,197	107.06	—11,696	11,467	—23,170	6,529
Pittsburgh & Shawmut	103	31,093	4,474	37,004	21,669	39,148	1,056	23,473	2,936	88,282	238.57	—51,278	—7,485	—43,793	—64,937
Pittsburgh, Cincinnati, Chi. & St. Louis.	2,383	4,707,068	1,688,449	7,180,718	1,325,559	3,267,510	108,731	3,621,948	182,875	8,582,815	119.52	—1,402,097	483,657	—1,886,170	1,890,237
Pittsburgh, Shawmut & Northern	204	59,957	6,079	68,711	22,555	43,275	1,330	42,256	5,597	115,016	167.39	—46,304	1,821	—48,125	35,411
Port Reading	21	179,872	.....	217,046	15,019	1,359	18	76,583	1.045	94,024	43.32	123,022	18,229	104,793	59,443
Quincy, Omaha & Kansas City	255	71,108	26,826	105,680	36,415	22,466	127	48,771	1,685	109,367	103.48	—3,687	3.053	—6,759	66,473
Richmond, Fred. & Potomac	81	282,949	215,292	568,422	43,912	92,392	5,368	232.654	17,745	399,778	70.33	168,645	28,676	139,964	—240,520
Rutland	415	246,419	135,755	448,926	62,478	98,051	4,279	199,236	11,480	377,058	83.99	71,869	19,543	52,009	118,914
St. Joseph & Grand Island	258	197,714	27,658	248,131	75,926	48,571	2,240	133,291	12,685	272,713	109.91	—24,582	11,839	—36,422	4,646
St. Louis, Brownsville & Mexico	548	332,338	127,960	493,125	140,780	97,046	13,790	143,811	16,570	411,997	83.54	81,128	10,000	70,664	—30,635
St. Louis Merchants Bridge Terminal	9	.....	680	299,556	57,212	7,195	792	257,729	5,699	328,627	109.70	—29,070	9.898	—38,968	24,248
St. Louis-San Francisco	4,761	4,674,116	1,419,541	6,997,915	1,030,830	1,405,684	58,689	2,692,981	175,846	5,361,686	76.61	1,636,229	205,500	1,428,803	220,222
St. Louis Transfer	6	.....	.....	99,376	14,137	—2,823	195	56,931	2,075	70,514	70.95	28,862	43	28,819	16,799
St. Louis, San Francisco & Texas	134	108,186	21,905	141,124	17,102	22,330	1,837	73,728	3,869	118,868	84.22	22,257	1,629	20,604	21,162
St. Louis Southwestern.	939	1,142,708	183,299	1,386,478	165,518	303,156	19,613	387,111	39,557	919,107	66.29	467,372	37,770	429,563	255,520
St. Louis Southwestern of Texas	814	485,743	146,004	683,371	191,756	258,029	10,166	344,243	26,316	830,171	121.48	—146,800	21,000	—167,822	—28,285
San Antonio & Aransas Pass	737	283,700	117,993	419,041	204,903	131,923	3,835	186,731	15,704	541,903	129.31	—122,862	15,000	—138,130	—183,367
Seaboard Air Line	3,563	2,417,209	878,550	3,539,893	718,656	790,094	67,211	1,684,958	100,204	3,387,486	95.69	152,407	135,000	16,916	—13,837
South Buffalo	12	15,565	.....	51,446	7,516	13,142	443	24,451	1,419	56,970	110.73	—5,524	3,667	—9,191	—33,817
Southern	6,982	7,120,468	2,621,182	11,146,188	2,174,379	2,289,608	137,468	5,110,976	284,044	10,063,438	90.28	1,082,750	339,638	740,744	—317,578
Southern Ry. in Mississippi	278	120,054	60,363	192,501	41,888	19,427	3.798	85.535	4,205	154,852	80.44	37,649	7,500	30,119	3,066
Southern Pacific	7,049	10,641,709	3,798,428	15,721,987	1,880,961	2,896,120	110,998	5,557,887	276,292	10,954,366	69.67	4,767,621	317,277	4,448,648	2,139,158
Southern Pacific Steamship Lines	...	575,214	27,846	639,141	10,430	253,756	13,360	506,018	26,863	810,427	126.78	—171,286	9,997	—181,324	—359,687
Spokane International	156	103,828	18,337	124,380	27,246	9,829	2,570	41,029	5,059	85,362	68.63	39,018	7,196	31,822	16,259
Spokane, Portland & Seattle	538	424,457	150,289	618,220	107,049	80,524	8,277	221,843	20,918	440,948	72.70	177,272	75,000	102,204	—39,927
Staten Island Rapid Transit	24	82,599	71,374	174,139	20,124	33,007	1,065	97,938	9,491	161,626	92.81	12,524	20,000	—8,106	2,701
Tennessee Central	292	136,077	44,000	190,582	61,707	69,628	4,142	117,753	6,217	259,445	136.13	—68,864	7,175	—76,052	—76,806
Terminal R. R. Assn. of St. Louis	36	3,403	.....	342,895	120,995	18,525	2,781	214,981	4,509	362,786	105.80	—19,891	45,926	—65,954	—100,254
Texarkana & Fort Smith	87	147,592	19,784	179,029	12,508	37,586	1,453	61,072	2,935	115,499	64.52	63,530	6,458	57,852	6,020
Texas & New Orleans	469	453,748	161,385	687,280	121,491	201,498	4,524	198,997	13,814	573,024	83.37	114,256	21,356	92,852	20,175
Texas & Pacific	1,946	2,080,122	1,007,669	3,287,872	487,372	726,186	23,769	1,341,019	73,608	2,673,493	81.31	614,380	173,755	439,056	54,836
Toledo & Ohio Central	435	478,235	73,859	592,701	153,090	263,166	8,056	307,101	16,397	750,881	126.68	—158,180	31,568	—189,766	—117,519
Toledo, Peoria & Western	247	77,353	52,645	140,161	33,445	46,477	2,166	72,822	5,337	160,248	114.33	—20,086	8,500	—28,586	—2,810
Toledo, St. Louis & Western	454	721,957	18,087	773,785	122,294	188,148	7,488	347,959	12,083	677,851	87.60	95,934	25,000	70,934	123,652
Trinity & Brazos Valley	368	129,030	25,822	161,053	40,790	40,869	1,862	65,511	6,631	155,662	96.65	5,391	10,408	—5,020	—64,665
Ulster & Delaware	128	51,878	19,862	92,811	20,599	19,513	1,255	63,099	5,709	119,610	119.17	—17,798	1,800	—19,594	—11,176
Union	40	.....	.....	593,166	110,691	265,707	251	351,289	6,937	734,875	123.88	—141,709	9,000	—150,709	—314,871
Union Pacific	3,614	7,220,006	1,680,776	9,644,475	1,372,370	2,025,666	41,561	2,976,747	247,834	6,891,299	71.45	2,753,176	339,455	2,411,980	—785,291
Utah	98	138,281	612	137,247	19,861	22,580	168	26.280	2,212	71,102	51.81	66,145	6,790	59,355	18,872
Vicksburg, Shreveport & Pacific	171	185,306	87,091	295,246	49,003	60,132	5,140	105,039	12,323	234,847	79.54	60,399	20,242	40,085	31,581
Virginian	523	878,505	58,635	1,000,667	136,448	255,510	5,257	394,664	17,690	810,684	81.01	190,583	24,500	166,083	3,814
Wabash	2,503	3,145,803	795,115	4,312,598	872,380	821,435	55,826	2,203,973	120,671	4,097,843	95.02	214,755	112,092	102,090	—460,423
Washington Southern	35	115,950	137,545	321,051	46,307	38,828	2,944	124,766	8,875	224,999	70.08	96,052	16,476	79,550	—156,059
West Jersey & Seashore	361	276.400	413,758	769,395	169,514	221,919	7,537	500,169	22,695	927,738	120.58	—158,344	52,025	—210,396	—21,037
Western Maryland	689	882,195	79,519	1,123,170	163,647	438,559	18,163	427,465	51,332	1,110,440	98.86	12,731	43,200	—30,469	103,467
Western Pacific	1,041	1,028,464	142,432	1,220,182	185,222	194,948	14,224	355,724	27,834	797,456	65.35	422,726	59,845	362,779	262,257
Western Ry. of Alabama	133	141,801	69,219	227,404	27,309	46,685	3,124	79,358	7,413	167,678	73.73	59,725	3,000	56,725	—12,644
Wheeling & Lake Erie	511	639,258	60,745	800,154	85,474	256,152	6,362	421,852	27,024	801,155	100.12	—1,002	64,300	—65,331	—126,785
Wichita Falls & N. W.	328	694,632	44,050	249,646	66,090	48,732	1,636	138,949	5,930	261,337	104.68	—11,691	11,178	—22,877	27,234
Yazoo & Mississippi Valley	1,381	1,670,159	531,306	2,320,574	354,988	477,684	17,651	799,296	46,743	1,695,306	73.05	625,268	94,583	530,304	—122,025
Lake Superior & Ishpenning	34	67,170	270	76,375	15,810	15,840	258	26,355	2,478	60,741	79.52	15,634	3,872	11,762	—1,304
ELEVEN MONTHS OF CALENDAR YEAR 1919															
Alabama & Vicksburg	141	$1,670,839	$687,706	$2,530,800	$463,914	$549,374	$22,657	$1,003,999	$98,421	$2,160,542	85.37	$370,257	$123,257	$246,132	—$21,713
Alabama Great Southern	312	6,779,442	2,261,117	9,559,490	1,356,675	2,401,616	145,736	3,606,405	202,405	7,778,867	81.37	1,780,822	248,081	1,531,349	—254,473
Ann Arbor	301	3,179,088	655,052	4,050,284	566,078	715,953	51,794	1,874,098	116,283	3,324,781	82.08	725,502	176,500	548,530	365,140
Arizona Eastern	377	2,624,565	500,657	3,366,099	752,769	553,570	23,843	1,109,783	107,500	2,584,001	76.76	782,097	221,798	559,670	—678,178
Atchison, Topeka and Santa Fe	8,649	112,356,213	41,200,933	162,387,311	21,306,966	36,961,195	1,561,956	56,865,214	2,760,776	118,992,351	73.27	43,394,960	6,654,641	36,707,596	—2,519,092
Atlanta & West Point	93	1,218,671	1,049,212	2,534,502	312,849	459,040	34,308	952,305	77,314	1,869,247	73.75	665,255	78,500	586,643	—48,408
Atlanta, Birmingham & Atlantic	839	3,353,726	875,606	4,530,659	1,077,160	1,404,849	81,719	2,564,926	138,264	5,267,760	116.26	—737,101	176,000	—915,107	—463,611

REVENUES AND EXPENSES OF RAILWAYS

ELEVEN MONTHS OF CALENDAR YEAR, 1919—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (Inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
Atlantic City	177	$1,335,352	$2,668,471	$4,199,449	$564,998	$503,122	$18,290	$2,058,326	$14,630	$3,160,388	75.25	$1,039,062	$152,173	$886,880	—$280,363
Atlantic Coast Line	4,865	36,743,192	16,742,943	57,158,218	8,685,225	12,587,458	675,670	25,207,301	1,214,767	48,678,062	85.16	8,480,156	2,310,000	6,151,415	—4,027,425
Baltimore & Ohio, Chicago Terminal	90	.....	3,050	1,864,224	380,487	490,946	12,446	1,395,409	91,605	2,424,052	130.03	—559,828	302,634	—863,189	247,993
Baltimore & Ohio	5,151	124,868,854	29,309,067	166,874,203	24,476,392	51,523,860	1,727,478	71,861,967	4,085,715	154,898,986	92.82	11,975,217	4,181,185	7,779,832	—1,010,338
Baltimore, Chesapeake & Atlantic	87	948,249	482,252	1,486,508	166,817	417,508	11,398	858,247	38,372	1,492,341	100.39	—5,832	38,175	—44,011	43,480
Bangor & Aroostook	632	3,660,182	864,918	4,766,257	1,062,090	1,340,072	41,931	1,835,063	134,293	4,481,325	94.02	284,932	234,885	48,134	—348,251
Beaumont, Sour Lake & Western	118	889,652	279,051	1,226,463	279,290	233,539	23,268	515,631	55,810	1,107,538	90.30	118,925	29,700	88,978	—325,674
Belt Ry. Co. of Chicago	31	.....	.....	3,433,976	325,949	608,835	3,993	2,034,261	86,896	3,059,935	89.10	374,041	170,790	203,251	269,831
Bessemer & Lake Erie	217	11,267,972	454,852	12,009,127	1,366,114	3,713,055	114,820	3,750,637	212,870	9,158,184	76.26	2,850,942	166,500	2,684,281	—1,173,755
Bingham & Garfield	37	1,094,953	22,468	1,159,121	418,969	447,591	14,176	316,108	45,411	1,265,080	109.14	—105,959	89,991	—195,951	—1,587,484
Birmingham Southern R. R.	29	401,493	.....	522,793	46,989	64,917	7,763	266,508	35,783	421,960	80.71	100,832	20,301	80,532	—249,105
Boston & Maine	2,258	39,373,680	20,088,744	66,142,695	8,592,309	13,155,306	450,563	34,662,304	1,860,765	59,117,637	89.37	7,025,057	2,006,825	5,017,304	—363,325
Buffalo & Susquehanna R. R. Corp	296	1,841,430	74,156	2,012,577	493,836	1,047,298	21,827	698,192	88,676	2,349,828	116.75	—337,251	35,750	—373,004	—346,042
Buffalo, Rochester & Pittsburgh	589	10,972,735	1,443,857	12,949,772	2,176,753	4,792,751	159,274	6,207,724	358,147	13,719,507	105.94	—769,735	280,000	—1,050,302	—1,622,070
Canadian Pacific Lines in Maine	233	1,692,265	561,732	2,385,215	561,087	555,129	28,116	1,471,673	38,030	2,653,199	111.23	—267,984	128,000	—396,284	—30,929
Carolina, Clinchfield & Ohio	282	4,942,285	374,956	5,417,999	835,109	1,381,703	54,910	1,691,870	148,952	4,111,121	75.87	1,306,878	179,300	1,127,397	235,610
Central New England	301	5,629,413	271,629	6,178,555	1,413,744	1,117,125	32,201	2,749,257	159,325	5,478,275	88.66	700,280	176,000	523,151	81,021
Central of Georgia	1,918	11,880,904	5,864,938	19,591,635	3,955,056	4,063,443	379,984	8,393,721	653,809	17,451,476	89.07	2,140,160	722,883	1,406,911	—2,028,895
Central of New Jersey	685	29,950,748	7,866,546	40,926,536	4,958,402	10,850,939	286,853	19,255,004	927,207	36,456,316	89.07	4,470,220	2,282,657	2,187,394	—4,776,890
Central Vermont	411	3,883,265	990,268	5,338,422	1,023,961	1,372,120	85,293	3,196,852	194,929	5,893,519	110.40	—555,097	191,400	—746,800	—446,531
Charleston & Western Carolina	342	2,095,135	567,906	2,798,015	523,356	542,025	53,297	1,370,367	59,047	2,548,092	91.06	249,923	88,383	161,491	—318,805
Chesapeake & Ohio	2,505	48,683,380	13,255,693	65,799,339	10,808,167	15,925,929	411,892	35,954,111	1,223,071	54,672,762	83.09	11,126,577	1,818,841	9,302,439	—6,384,012
Chicago & Alton	1,050	15,646,250	5,875,103	22,890,226	3,951,248	6,564,763	271,447	9,903,968	542,900	21,347,533	93.26	1,542,693	676,680	863,637	—2,118,631
Chicago & Eastern Illinois	1,131	16,493,775	4,463,726	22,623,057	3,496,341	8,159,917	232,897	9,536,791	522,925	22,033,036	97.39	590,021	805,502	—219,991	—2,298,063
Chicago & Erie	269	7,664,752	1,031,628	9,504,852	1,052,001	1,585,509	116,753	4,759,646	302,693	7,851,810	82.60	1,653,042	372,965	1,279,976	464,499
Chicago & Northwestern	8,090	85,311,561	32,268,885	128,495,802	19,013,006	26,779,297	805,157	57,700,122	2,766,893	108,037,908	84.07	20,457,894	5,225,000	15,221,468	1,295,727
Chicago, Burlington & Quincy	9,372	98,147,468	32,609,995	141,282,136	20,078,536	29,520,875	973,981	53,972,018	3,560,555	109,448,136	77.46	31,833,999	4,989,023	26,816,229	2,302,282
Chicago, Great Western	1,496	13,325,110	5,504,192	20,268,695	3,306,105	4,504,310	287,256	8,686,565	500,188	17,428,115	85.98	2,840,580	623,238	2,216,661	1,410,713
Chicago, Indianapolis & Louisville	657	7,633,230	2,645,900	11,277,926	1,342,349	2,972,933	156,247	4,843,234	286,963	9,712,714	86.12	1,565,212	447,452	1,116,348	—129,628
Chicago Junction	12	.....	.....	3,391,416	736,944	553,031	1,100	2,513,345	75,470	3,879,891	114.41	—488,475	28,717	—517,275	—197,547
Chicago, Milwaukee & St. Paul	10,648	97,807,161	27,574,081	137,783,972	21,176,538	36,890,182	964,038	62,384,268	3,534,041	125,517,256	91.09	12,266,717	5,867,226	6,267,962	778,174
Chicago, Peoria & St. Louis	247	1,194,069	280,869	1,574,776	415,220	731,604	30,284	942,705	94,750	2,214,480	140.62	—639,704	74,866	—714,586	—382,932
Chicago, Rock Island & Gulf	463	3,267,113	992,549	4,536,434	712,733	804,114	77,032	1,975,246	131,624	3,711,717	81.82	824,717	158,121	666,175	—289,256
Chicago, Rock Island & Pacific	7,594	66,660,242	28,825,363	101,427,337	16,971,440	23,102,653	1,134,142	43,242,072	2,207,583	87,052,528	85.82	14,375,009	4,015,207	10,359,979	206,759
Chicago, St. Paul, Minneapolis & Omaha	174	16,736,760	6,941,354	25,319,887	3,577,454	4,667,129	235,063	11,806,457	668,008	21,109,382	83.37	4,210,505	1,197,305	3,008,241	549,829
Chicago, Terre Haute & St. Louis	374	3,395,610	238,847	3,735,701	622,455	1,682,808	33,991	1,456,792	97,252	3,910,565	104.68	—174,864	159,500	—334,383	—820,648
Cincinnati, Lebanon & Northern	76	826,146	89,641	1,078,691	195,090	241,329	14,599	591,431	10,982	1,053,432	97.65	25,259	53,388	—28,136	—99,281
Cincinnati, Indianapolis & Western	321	2,014,669	589,116	2,861,232	560,680	937,250	59,692	1,484,387	146,327	3,198,021	111.77	—336,789	125,622	—462,489	—362,944
Cincinnati, New Orleans & Texas Pacific	337	10,899,629	3,290,614	14,930,165	2,270,137	4,892,905	251,466	6,188,749	375,177	14,058,827	94.16	871,338	414,214	450,546	—1,678,673
Cincinnati Northern	251	2,368,830	208,526	2,653,227	385,811	602,875	23,897	947,808	52,161	2,012,552	75.85	640,675	112,100	528,254	222,475
Cleveland, Cincinnati, Chic. & St. Louis	2,397	45,738,293	15,673,837	66,622,180	8,188,142	12,971,058	834,787	27,190,950	1,195,698	50,894,148	76.39	15,728,031	2,057,000	13,661,088	—1,165,046
Colorado & Southern	1,100	8,873,278	2,320,958	11,870,656	1,949,845	2,849,528	93,678	4,402,381	397,927	9,774,178	82.33	2,096,479	517,000	1,575,604	—983,619
Colorado & Wyoming	41	240,757	13,065	890,339	111,839	168,835	1,570	396,957	41,539	720,739	80.95	169,600	44,000	125,600	—730,010
Cumberland Valley	163	4,039,463	802,624	5,192,270	917,617	1,166,277	71,166	1,942,822	126,347	4,231,329	81.49	960,941	94,063	866,468	—1,042,766
Delaware & Hudson	875	27,060,008	3,011,417	31,868,866	4,027,891	9,095,372	216,998	14,097,990	1,190,590	28,964,024	90.88	2,904,843	714,000	2,183,256	—581,154
Delaware, Lackawanna & Western	955	47,310,616	11,394,038	65,516,900	7,061,831	13,806,270	451,981	27,736,270	1,249,549	50,965,827	77.79	14,551,074	3,449,429	11,079,889	—3,956,061
Denver & Rio Grande	2,593	21,698,602	6,350,728	29,850,621	4,560,596	7,202,161	219,005	10,142,857	763,421	23,357,216	78.24	6,493,404	1,230,000	5,258,601	751,943
Denver & Salt Lake	255	2,163,920	413,875	2,658,205	794,550	1,019,807	10,224	1,405,118	57,104	3,306,804	124.38	—648,598	99,000	—748,182	—20,235
Detroit & Mackinac	381	1,090,272	361,644	1,538,285	242,056	408,221	30,307	699,430	101,054	1,479,899	96.20	58,386	84,683	—26,298	14,747
Detroit & Toledo Shore Line	61	2,219,130	.....	2,255,356	231,166	204,724	12,520	659,068	50,984	1,157,873	51.33	1,097,513	100,096	987,410	321,777
Detroit, Toledo & Ironton	456	3,128,796	147,281	3,476,796	984,923	1,053,451	33,752	1,627,590	51,207	3,850,972	110.92	—379,175	100,311	—479,884	—68,024
Duluth & Iron Range	292	7,030,468	246,415	7,833,188	996,666	1,088,830	5,089	2,025,436	158,261	4,277,426	54.60	3,555,762	395,243	3,159,364	—759,952
Duluth, Missabe & Northern	411	17,775,331	494,138	19,734,662	1,788,683	1,527,446	24,483	3,673,543	220,384	7,249,825	36.73	12,484,837	806,936	11,677,901	—819,229
Duluth, South Shore & Atlantic	599	2,983,927	1,124,855	4,397,413	870,934	779,794	60,206	2,122,360	101,383	3,988,474	90.70	408,939	223,003	185,681	—192,463
Duluth, Winnipeg & Pacific	178	1,421,231	278,712	1,752,753	356,420	339,963	28,200	764,574	89,711	1,585,530	90.45	167,223	94,235	72,986	—46,497
East St. Louis Connecting	3	.....	.....	1,099,046	157,143	235,017	2,996	794,309	36,862	1,225,980	111.54	—126,934	27,865	—154,798	—43,596
El Paso & Southwestern	1,027	9,106,430	1,996,104	11,710,341	2,057,932	2,304,423	108,438	3,227,042	280,141	8,063,665	68.85	3,646,676	626,173	3,020,040	—1,687,273
Elgin, Joliet & Eastern	829	14,871,521	101	17,315,078	1,755,317	4,563,316	75,266	6,849,612	282,182	13,523,571	78.10	3,791,507	591,120	3,200,404	—1,455,805
Erie	1,989	63,646,210	12,460,372	83,677,123	9,805,222	26,290,605	686,288	40,603,807	2,205,374	80,064,884	95.68	3,612,239	3,072,572	519,627	2,396,898
Florida East Coast	764	5,378,660	2,705,230	9,124,703	1,535,169	1,680,316	88,017	3,963,204	190,366	7,560,126	82.85	1,564,577	418,789	1,143,155	—438,624
Fonda, Johnstown & Gloversville	88	370,118	723,832	1,139,587	131,332	97,571	6,823	442,303	55,991	734,020	64.41	405,566	58,900	346,667	5,784
Fort Smith & Western	253	1,083,755	316,672	1,490,639	273,993	349,423	41,108	527,492	71,192	1,270,142	85.20	220,497	55,000	164,138	61,073
Ft. Worth & Denver City	454	6,491,189	3,229,592	10,109,666	978,062	1,975,560	50,552	3,619,419	275,864	6,934,105	68.59	3,175,561	223,162	2,951,169	1,536,704
Ft. Worth & Rio Grande	235	773,880	511,315	1,487,845	313,719	250,616	15,141	720,227	67,598	1,367,303	91.89	120,541	33,402	86,774	74,586
Galveston, Harrisburg & San Antonio	1,381	13,694,230	5,000,377	19,624,292	2,764,754	4,390,131	190,804	7,199,664	589,881	15,299,517	77.96	4,324,776	581,818	3,737,625	—1,431,275
Galveston Wharf	13	.....	.....	854,882	316,364	10,272	169	303,851	17,534	774,473	90.53	80,409	137,500	—57,091	—233,557
Georgia	328	3,814,248	1,647,017	5,868,356	615,515	975,731	89,687	2,715,709	185,636	4,584,211	78.11	1,284,145	66,450	1,217,633	—899,066
Georgia & Florida	348	620,794	229,894	907,978	360,465	219,532	20,930	579,660	62,054	1,242,642	136.85	—334,664	46,219	—381,664	—312,367
Georgia Southern & Florida	402	2,525,525	1,070,838	3,933,832	668,881	951,673	67,198	1,883,886	118,978	3,716,620	94.47	217,213	167,307	49,227	—149,277
Grand Rapids & Indianapolis	569	5,025,329	1,985,551	7,578,496	949,080	1,715,896	115,599	3,571,941	260,037	6,643,087	87.65	935,409	284,306	651,018	125,923
Grand Trunk, Western	1,001	15,417,569	3,312,011	20,408,489	2,586,363	3,375,734	184,625	9,249,014	559,121	16,007,365	78.43	4,401,123	570,969	3,826,328	3,259,647

November Earnings

In the eleven months ended November 30, 1919, 186 Class I roads and 17 switching and terminal roads earned net operating income amounting to $503,049,514, according to the monthly summary issued by the Interstate Commerce Commission. This compares with $664,480,245 in the corresponding period of 1918, and with $832,000,000 for the corresponding months of the test period, thereby indicating a deficit for the government for 11 months of $329,000,000. A preliminary statement issued by the Railroad Administration recast the accounts so as to show a loss of only $293,000,000 for this period. The Interstate Commerce Commission figures do not correspond exactly with those of the Railroad Administration because they include a few roads not under federal operation. The operating ratio for 11 months was 84.66, as compared with 80.73 in 1918.

For November the Interstate Commerce Commission report shows a net operating income of $21,966,992, as compared with $57,270,158 in November, 1918. The operating revenues for the roads as a whole show the effect of the coal strike very little, having decreased only $2,776,000, as compared with November, 1918, but the eastern roads show a falling off in revenues of $23,000,000. The freight revenues of the roads as a whole, however, fell off $19,000,000, while the passenger revenues increased $10,000,000 and the express revenues $4,000,000. Expenses show an increase of $25,000,000, of which $10,000,000 was in maintenance of equipment, $4,000,000 in maintenance of way, and $8,000,000 in transportation, showing that the unfavorable results of the month are largely due to other causes than the coal strike. The commission's figures are shown in the large table. The average railway operating income per mile for November (item 22, $125) compares with an average for November, 1914, 1915 and 1916, of $378 per mile.

RAILWAY REVENUES FOR NOVEMBER AND FOR ELEVEN MONTHS.

Item	November Amount 1919	November Amount 1918	November Per mile of road operated 1919	November Per mile of road operated 1918	Eleven months Amount 1919	Eleven months Amount 1918	Eleven months Per mile of road operated 1919	Eleven months Per mile of road operated 1918
1. Average number miles operated	234,159.32	234,047.09	.....	.....	233,950.00	234,287.84	.....	.....
Revenues:								
2. Freight	$303,511,167	$322,551,705	1,296	1,378	$3,253,139,834	$3,148,523,766	13,905	13,439
3. Passenger	92,322,627	81,766,019	394	349	1,078,222,658	939,618,167	4,609	4,010
4. Mail	4,283,114	4,244,888	18	18	47,728,608	48,954,789	204	209
5. Express	14,755,913	10,695,145	63	46	111,621,167	113,370,896	477	484
6. All other transportation	10,851,544	10,514,682	46	45	115,824,015	116,119,655	495	496
7. Incidental	12,013,757	10,687,905	52	46	120,108,508	114,468,506	513	488
8. Joint facility—Cr	585,990	591,740	3	3	6,265.095	5,433,399	27	23
9. Joint facility—Dr	185,278	136,896	1	1	1,968,560	1,596,932	8	7
10. Railway operating revenues	438,138,834	440,915,188	1,871	1,884	4,730,941,325	4,484,892,246	20,222	19,142
Expenses:								
11. Maintenance of way and structures	66,645,163	62,694,295	284	268	714,198,357	586,221,354	3,053	2,502
12. Maintenance of equipment	112,210,717	102,094,322	479	436	1,115,552,557	1,001,259,690	4,769	4,274
13. Traffic	4,006,003	3,319.293	17	14	42,905,777	45,409,835	183	194
14. Transportation	192,415,151	183,992.084	822	786	1,979,388,602	1,855,384,388	8,461	7,919
15. Miscellaneous operations	4,412,448	3,253,575	19	14	44,508,260	35,406,458	190	151
16. General	10,723,907	9,918,523	46	43	114,244,141	102,233,691	488	436
17. Transportation for investment—Cr	480.955	451,796	2	2	5,424,701	5,141,814	23	22
18. Railway operating expenses	389,932,434	364,820,296	1,665	1,559	4,005,372,993	3,620,773,602	17,121	15,454
19. Net revenue from railway operations	48,206,400	76,094,892	206	325	725,568,332	864,118,644	3,101	3,688
20. Railway tax accruals (excluding "War Taxes")	18,820,349	15,910,468	80	68	177,017,268	173,168,302	757	739
21. Uncollectible railway revenues	143,521	32,045	1	...	810,400	549,630	3	2
22. Railway operating income	29,242,530	60,152,379	125	257	547,740.664	690,400,712	2,341	2,947
23. Equipment rents (Dr. Bal.)	5,880.036	1,612,843	25	7	30,827,833	12,945,730	132	55
24. Joint facility rent (Dr. Bal.)	1,395,502	1,269,378	6	5	13,863,317	12,974,737	59	56
25. Net of items 22, 23 and 24	21,966,992	57,270,158	94	245	503,049,514	664,480,245	2,150	2,836
26. Ratio of operating expenses to operating revs..%	89.00	82.74	...	...	84.66	80.73	...	...

*Credit item. §Debit item.

National Agreement for Signal Employees

A national agreement covering rules and working conditions for employees represented by the Brotherhood of Railroad Signalmen of America, effective February 1, 1920, has been signed between the director general and the officers of that organization, to continue in force during the period of federal control. The request for this agreement was made several months ago by this organization and has been under consideration since that time. The agreement covers rules upon seniority, discipline, etc., and provides that there will be no change in the agreement during federal operation until after 30 days' notice has been given by either party. In the agreement a classification is outlined.

Stop the Waste!

This is the heading of a large placard, red and black, dealing with freight-damage claims, which has been posted by the Transportation Department of the Southern Railway and addressed to "Every Employee of the Southern Railroad Lines and Associated Railroads, wherever located, in whatever department." Among other things it says:

"You, as an individual, must play your part in the game of prevention of the loss of and damage to freights, if we are to win. If any man among us hasn't the courage to stand up and come to tip-toe and do the thing that he knows will protect the property which he in his job is charged to safeguard, then let him stand aside and keep out of the way of those who will 'carry on.'

"What do you say? Will you go along with us and 'carry on' for a return to pre-war basis?

"This isn't a 'drive,' it's a call to come along and do your duty to mankind and your Railroad.

"MR. AGENT: Post this in your office and warehouses and see to it that every human being connected with the station under your jurisdiction understands and discharges the duty he owes to his Railroad and himself. * * *

"MR. CONDUCTOR: Post this in your cab and not only talk to the boys in your crew about it, but see that the stuff is handled right. I am counting on you to set the example. Waste in local way service is one of the heaviest contributors to the loss and damage account. It isn't necessary for me to enter into detail; *you know better than anyone else how freight should be handled.*

"MR. ENGINEMAN: That last application of the emergency when you froze her to the spot destroyed valuable property and cost your railroad heavily. Have a care, old fellow, shocks in transit are expensive, and you can materially reduce them.

"MR. YARDMASTER: Post this in your office and at other points where your forces will be reminded what an unusual shock in switching means to the merchandise car. *Seriously consider the cost.* * * *

"FOR TEN MONTHS, January to October, inclusive, Southern

Railroad Lines paid for loss of and damage to freights as follows:

1917	$752,561
1918	1,035,917
1919	3,262,872

"Remember this money is gone; it cannot be turned into ties, rails, cars or new cabooses. Will you cut a million and a half off these figures during 1920? You did the trick once before; why not force history to repeat itself?

"It is said that the two big things of today are love and service. Imagine the unhappiness of the man who doesn't love his work to a point where he will through that love for mankind and his chosen profession go the limit to render 100 per cent service. * * *

"[Signed] W. H. GATCHELL."

Freight Efficiency on the Erie

A. J. Stone, Federal Manager, in a circular addressed to division officers and employees of the Erie Railroad says that the transportation department is doing work better than has been done before and better than is being done on some neighboring railroads. Referring first to improvement in freight car movement he reports the following figures:

AVERAGE MILES PER CAR PER DAY

October 1916	26.6
October 1917	25.7
October 1918	30.1
October 1919	37.5

The increase in 1919 over 1917, which was the year previous to Federal operation is 45 per cent. Averages reported from neighboring roads for October, 1919, compare with the Erie as follows:

AVERAGE MILES PER CAR PER DAY.

Erie Railroad	37.5
D. L. & W.	30.7
New York Central	27.8
Lehigh Valley	24.2
Baltimore & Ohio (Lines East)	24.0
Baltimore & Ohio (Lines West)	29.4
Pennsylvania (Lines East)	24.8
Pennsylvania (Lines West)	21.4

This increased mileage per car per day was not accomplished by running trains fast with light tonnage, as will be seen by the following statement:

AVERAGE GROSS TONS PER TRAIN PER MILE

October 1916	1787
October 1917	1932
October 1918	1927
October 1919	2067

An increase of over 15 per cent since 1916.

"Having moved the cars faster, and increased the train load at the same time, it will be interesting to know what each man did to produce this result. Taking the total number of hours worked by all the engineers, firemen, conductors and brakemen on the entire railroad and dividing it into the total number of tons handled one mile, the following appears:

SYSTEM AVERAGE; GROSS TON MILES PER MAN ONE HOUR

October 1916	1902
October 1917	1883
October 1918	1991
October 1919	2552

"Each man on a train working an hour in 1919 represented the movement of 2,552 gross ton miles, an increase of 34 per cent over 1916."

While recognizing the efforts of all classes, Mr. Stone calls particular attention to the fuel record, "The firemen (assisted more or less by the enginemen) have made the following good record:

POUNDS OF COAL BURNED TO MOVE 1,000 GROSS TONS ONE MILE

October 1916	172
October 1917	174
October 1918	168
October 1919	155

"Thus it will be seen that in 1919 ten per cent less coal was burned to move a given load of 1,000 gross tons one mile than in 1916. Ten per cent of the Erie locomotive fuel consumption for a year amounts to about 400,000 tons.

"It is gratifying to know that the physical performance of handling the equipment and traffic is being carried on with an efficiency never before attained. It is expected and believed that you will keep up the stroke and show the same improvement during the coming year as has been shown during the past year. . . ."

Commission and Court News

Personnel of Commissions

George R. Kibbe, of Fruitvale, Cal., has been appointed chief accountant of the department of finance and accounting of the Railroad Commission of California. Mr. Kibbe was formerly with the United States Shipping Board Emergency Fleet Corporation.

Court News

Trespassers Crossing Tracks

The Kansas Supreme Court holds that no public way is established across a switchyard merely because pedestrians for many years had so frequently trespassed thereon that they had worn a beaten track across it. Any one who undertakes to cross a switchyard of many tracks, where engines and cars are likely to be moving at any time in the regular course of the railroad's business, is held a trespasser and does so at his own peril. The only duty of the railroad company and its employees towards such trespassers is not to wilfully injure him.—Allen v. Missouri Pacific (Kan.) 178 Pac. 395.

Fraudulent Injury Claims—Proof of Other Offenses

In a prosecution for obtaining money from a railroad company by falsely pretending to have been injured by its negligence, the Iowa Supreme Court holds that evidence that the accused had made similar claims against other railroad companies was admissible to show motive and scheme and purpose to defraud. The falsity of the claim must be proved independently of other instances wherein the accused had defrauded other railroad companies; but when the falsity of the claim has been shown, the accused's intent may be shown by previous similar transactions whereby he obtained money from other companies.—State v. Kouzen (Iowa) 171 N. W. 137.

Obstruction of Street While Changing Grades—No Liability for Injury to Business

The New York Court of Appeals holds that a railroad company causing the obstruction of a street during the making of improvements eliminating grade crossings under orders of the Public Service Commission is not responsible for damage to one's business by reason of the erection of a temporary structure. Where improvements are lawfully made in a public street which do not involve direct encroachment upon private property, the person or corporation making them is not liable for consequential damages unless they are caused by negligence, misconduct or want of skill.—Ramme v. Long Island, 226 N. Y. 327, 123 N. E. 747.

Federal Control—Suits Against Railroads

The Massachusetts Supreme Court holds that a railroad guard's right to damages for breach of his contract of employment is a vested right of property, enforceable, under General Order No. 18a, in the Superior Court for the county, where, in contemplation of law, the guard had his residence. It is also held that the order of the Director General of Railroads that suits against carriers, while under federal control, must be brought in the county where the plaintiff resides, or where the cause of action arose, having been issued after action had been begun, is inapplicable, so that the guard could resort to any court of competent jurisdiction, though no attachment on mesne process could be made, and, if a judgment was obtained, no execution could be levied on the railroad's property.—West v. N. Y., N. H. & H. (Mass.), 123 N. E. 621.

Foreign Railway News

The State and South Railways of Austria are reported by the Times (London) Trade Supplement, to have been acquired by French financiers.

Extension of Greek Railway

Le Petit Journal, of December 30, reports that a party of 50 French railway experts was leaving Paris that day for Athens to supervise the organization of the Greek railways, which are to be materially extended after the coming into force of the Treaty of Versailles.

Oil Fuel in South America

LONDON.

A large number of the South American railroads are converting their locomotives from coal to oil, fuel consumption. Among those that have already made considerable progress in this direction are the Buenos Aires Western Railway, thereby saving a sum of £3 per ton on the fuel consumed; the Buenos Aires Great Northern, the Entre Rios, the Cordoba Central, the Venezuela Central, the Bolivia railway which has all necessary oil at its own doors, and the Central Argentine Railway.

Electrification of the Central of Brazil

LONDON.

An Anglo-Italian syndicate is reported to have presented to the Federal Government of Brazil an elaborate scheme for the electrification of the Central railway, a Government owned enterprise. A similar project has already been put before the Administration by a French syndicate and the granting of the concession will depend upon the terms offered. It is believed that the government engineers are in favor of the French offer being accepted.

Definitions of Export Quotations

The National Foreign Trade Council, 1 Hanover Square, New York, is issuing a small 15-page booklet containing definitions of export quotations and general recommendations for a standard American export practice. These suggestions have been adopted by a conference of the Foreign Trade Council and eight other associations. They bring out the advisability of abandoning the use of abbreviated forms of export price quotations, but their real purpose is to effect a simplification and standardization of American practice as to export terms.

Railway Reconstruction in Serbia

A semi-official statement, recently issued in Belgrade, states: "The Roumanian Minister in Belgrade lately called on M. Davidovitch, Serbian Premier, and informed him, in conformity with instructions received, that the Roumanian Government had waived the seizure of building material for the bridge over the Save and of the 400 railway trucks and 13 locomotives hitherto kept back in Roumania. This material, which was detained by the former Roumanian Government, was essential for the reconstruction of the railway bridge over the Save destroyed by the Austrians at the time of their retreat, and the failure to repair the bridge has been causing an interruption of direct communication between Constantinople and Salonica and Western Europe for the last few months."

Railway Needs in Jugoslavia

The richest Jugoslav province, Wojwodina, has only one railroad communication with Serbia, that over the Sava bridge at Semlin. As this railroad is glutted with the traffic with Croatia, Bosnia, Dalmatia, and Slovenia, as well as the transit traffic with Roumania, Wojwodina is almost entirely cut off from Serbia. The Belgrade *Trgovinski Glasnik* says the Guaranty Trust Company is in favor of building a large railroad bridge over the Danube between the Banat town Kovin and the Serbian Smederevo. As influential circles in the Banat and in Serbia are in favor of the project, it is probable that work will soon be begun.

Germany Forbids Misuse of Freight Cars

LONDON.

The Technical Review gives an abstract from the Zeitung des Vereins Deutcher Eisenbahnverwaltungen, which states that the German Minister of Commerce issued the following proclamation on November 2, 1919:

1. It is forbidden to use for other purposes wagons allocated to special duties, also wagons which have been unloaded are not to be reloaded without the permission of the railway authorities.
2. It is forbidden that goods should be delivered to the railways for despatch, if such goods come under the heading of goods which have been scheduled as unsuitable in the public interest for such transport.
3. Any person who disobeys the above two clauses is liable to imprisonment for 12 months and to a fine of £750 or to one of these penalties.
4. The Act becomes operative by its publication.

Appropriations for New Lines in Bolivia

The Chamber of Deputies of Bolivia has recently passed two loan bills, one for the appropriation of 8,700,000 pesos for the construction of small railways and the improvement of the sanitation system; and another for the appropriation of 2,500,000 pesos to be used on the Yungas-Beni Railway. The route for the proposed railway, which has been previously mentioned in these columns, to run from the city of Puno, Peru, around the end of Lake Titicaca to Guaqui, the Bolivian port on that lake, is to be surveyed in the near future. This route will eliminate the need of trans-shipment of goods there and will thus effect the lowering of the freight rates from Mollendo, Peru, to La Paz, Bolivia.

The English Channel Tunnel

In order to expedite decision respecting the construction of a tunnel under the English Channel, a deputation of the Channel Tunnel Committee of the House of Commons recently called upon the Prime Minister. His attention was called to the fact that no serious engineering difficulties were anticipated; that the time necessary for completion would be five years; and the total cost would be $155,728,000, or double the pre-war estimate. There was said to be great enthusiasm for the scheme in France.

The Prime Minister in replying stated that the problem would be carefully examined from the engineering, military, naval, and air points of view, and "if the military advice is favorable the ministry will certainly be prepared to support the plan on general grounds."

New Line for Mexico

The Rio Grande border town of Ojinaga, which has figured prominently in revolutionary affairs of Mexico during the last several years, is to obtain a railroad outlet, according to official announcement that has just been made. It is stated that the Department of Communications and Public Works of the Mexican government has authorized the construction of a railroad from Juarez to Ojinaga, 250 miles, and that the survey for the proposed line has been ordered. The route of the road follows closely the course of the Rio Grande. Although its primary purpose is to provide means for the quick transportation of troops and supplies in case of border disturbance, it will also serve to open to development a considerable stretch of valley territory that is susceptible of reclamation by means of irrigation. It is planned to ultimately extend the line from Ojinaga southeast to a connection with the Eagle Pass-Torreon division of the National Railways of Mexico. The proposed extension will be about 400 miles long. The cost of building the road from Juarez to Ojinaga will be borne jointly by the federal government and the Chihuahua state government, it is announced.

Mexico to Spend $2,000,000 for Equipment

An appropriation of 4,000,000 pesos, equivalent to $2,000,000, has just been authorized by the Mexican government for the purchase of rolling stock for the National Railways of Mexico. Most of the new equipment will be second-hand and will be purchased in the United States. There is at present such a shortage of cars and engines upon the different divisions of the National Railways that it is impossible to move but a small percentage of

the traffic that is offered. Thousands of box cars have been wrecked by bandits and revolutionists during the last several years. The shops of the railroad at Saltillo, Aguas Calientes and other points are doing considerable work in the matter of reconstructing damaged cars and engines, but the number which is being turned out is far from sufficient to meet the demands of traffic. Thousands of new railroad crossties are needed to repair the rundown condition of the system. Large orders for materials have been placed in the United States and some shipments of crossties have been received. In the more isolated parts of the country where timber is scarce the sidetracks have been torn up by poverty-stricken natives and the crossties used for fuel.

Train Ferries for African Lakes

A proposal to employ train ferries for the great lakes on the African continent, has been offered in England by H. Wilson-Fox, M. P. The project is reported as especially desirable, for a considerable time must necessarily elapse before the Cape to Cairo Railway is an accomplished fact, and anything, therefore, that is practical and calculated to expedite transport in the regions to be traversed should be welcomed. Mr. Wilson-Fox emphasizes that for the purpose of train-ferry service, the Byasa, Tanganyika and Victoria Nyanza systems have the great advantage that they are not tidal—although this does not mean that provision need not be made at the docks for appreciable changes of level, which may be due either to the seasonal rainfalls or by the action of the long-continued winds.

The lake routes indicated run practically north and south and represent in the aggregate about 850 miles, and Mr. Wilson-Fox estimates that at present prices it would cost about $20,000,000 to construct railways over this distance, as against a cost of $6,000,000 for train ferries, or a saving of $14,000,000.

In regard to the Victoria Nyanza, Mr. Wilson-Fox does not anticipate that the use of train ferries on that great lake will be restricted to north-to-south routes. He fully expects that in days to come there will be quite a number of other ferry services, notably between Kisumu (Port Florence), and the ports on the northern and western shores, for the purpose of developing the valuable agricultural regions in the vicinity of the lake, and particularly those lying to the west, northwest and north, by giving them better communications with the shortest route to the east coast via the Uganda Railway.

Europe to India by Rail

The fascinating idea of effecting railway communication between Europe and India has been advocated for many years. and it is perhaps not generally recognized, says the Railway Gazette, London, that this project is now well on the way to fruition owing to the construction and development of military railways in the Mesopotamian theatre of war. In that vast country, there are now approximately 1,000 miles of railway, about 250 miles being standard gage line, which was constructed in 1915 by the Germans as part of the Berlin-Bagdad scheme, has been extended to Baija, a point only some 200 miles southeast of Nisibin, to which place the Germans have extended the Konia-Mosul line.

Additionally, a meter gage line is now being operated between Bagdad and Quaritu on the Persian frontier, while construction is proceeding on an extension to Khermanshah. The existence of these two lines, together with the approaching completion on the meter gage of the Bagdad-Basra through railway, mark a decided advance in the railway development of the Middle East, and with the tendency of the Indian lines to extend into Persia, there would appear to be every probability of the through line between Europe and India via Persia being completed in a very short time. All that would then remain to place England into direct rail communication with her Far Eastern possessions is the completion of the Channel tunnel, which would now appear to be well within the range of practical politics.

The subject is of considerable interest, concludes the Railway Gazette, more especially in view of the industrial and agricultural development of the Middle East, and as there appears to be every possibility of considerable railway development in Persia in the near future, the throughout mail route may soon be an accomplished fact.

American Locomotives for Jugoslavia

Commerce Reports in its issue of January 22 gives the following translation from the "Pravda" of Belgrade, of December 11, relative to the prospective purchase of American locomotives by the Jugoslav Government:

"The question of locomotives will soon be favorably settled. In the first place, the plans decided upon during the last few days in Vienna by M. Kristan will have a decisive effect on this subject. The departure of MM. Kristran and Sartchitch for Prague and Berlin has to do with the same question. Then, too, it is probable that the steps taken by M. Drachkovitch may result in the return of the locomotives taken from us by the Bulgars as well as of those lent by us to the Allies at Salonica. Now that the treaty of peace with Bulgaria has been signed, a special commission will be sent to that country to bring back the locomotives which were taken from us.

"Moreover, the Government has received very favorable offers for the delivery of locomotives, notably from a large American firm. The State should make an agreement with this firm, by which it would be bound to furnish us, in six months, at least 100 new locomotives according to our specifications to run on our tracks. The firm does not ask our Government to start payment on these locomotives until three years after the signing of the agreement. During all this time the State will not even be obliged to pay interest. The liquidation of the debt and the payment of interest will not begin until the end of the third year. So we will obtain immediate possession of the locomotives, which are an absolute necessity to us, without having to pay any of the purchase money for three years. Because of the material advantage which these offers hold out to our country, the Government has decided to treat with this house through M. Zlatkovitch, Under Secretary of the Ministry of Communications."

Railway Congestion in the United Kingdom

There is hardly an issue of any British engineering publication or daily paper coming to this country at the present time that does not speak of the congestion on the railways of the United Kingdom, or the difficulties caused by the shortage of railway wagons.

The latest question is whether the greatly increased railway rates which went into effect on January 15 will help in remedying this condition by, for example, sending freight by coastwise steamship.

The Times, London, however, believes that those who take this view are holding themselves open to disappointment. Speaking of the situation as it relates particularly to congestion at the seaports, it says in a recent issue:

"The real remedy," it says, "is to increase the capacity of the railways for carrying goods, and this means more wagons. So that, unless the Ministry of Transport is prepared to take immediate steps to increase the number of wagons, the rise in railway rates can only be a half-measure, which will disappoint the large public expectations that are certain to be built upon it.

"The chief reason for the scarcity of railway wagons, as we understand the matter, is not the controversy between the Ministry of Transport and the private builder about the fair cost of producing new trucks. It is uncertainty about the railway policy of the government. The railway companies will not build wagons so long as the threat of railway nationalization—with the possibility of the commandeering of their property at prices which they may think confiscatory—is hanging over them; and private companies, which would normally be building their own wagons, are not building them now because they, too, are afraid that they may be requisitioned by the government as soon as they are built. If the government could make up their mind about their railway policy, and would tell the railway companies and the public what it is to be, there might be some prospect of the necessary wagons being produced quickly. Till then the only possible expedient is for the Ministry of Transport to bring back the wagons which are still in France much more quickly, and to repair them with far greater speed and efficiency."

Increased Railway Rates in the United Kingdom

New freight rates resulting in increases of from 25 per cent upwards were put in effect on the railways of the United Kingdom on January 15. The new rates are expected to yield £50,000,000 (or $200,000,000 at a conversion rate of $4 to the pound), which it is hoped will make the railways self-supporting, or, in other words, bring about "equilibrium between the receipts of the railways and their heavily increased expenditure due to higher wages and enhanced cost of material." Passenger rates were increased 50 per cent during the war, but freight rates were not changed until the present increase was made.

It is difficult to indicate to American readers just how the increases have been made. The Times (London), however, outlines the changes as follows:

The new rates show a very heavy increase on the existing charges, varying from 100 per cent to 25 per cent, with in many cases the addition of a flat rate of from 3d. to 6d. per ton, irrespective of distance. The 100 per cent increase applies to small parcels and to certain "empties," two classes of traffic which have grown enormously recently and to which the railway companies have attributed some of the congestion recently. The charges for coal, coke and patent fuel are increased by 25 per cent and a flat rate addition of 3d. per ton. Other merchandise in Class A of the General Railway Classification is increased by 30 per cent, and in Class B by 50 per cent, with a flat rate addition of 3d. per ton. Merchandise in Class C of the general railway classification is increased by 50 per cent, with a flat rate addition of 6d. per ton; while merchandise in Classes 1 to 5 of the general railway classification is increased by 60 per cent, with a flat rate of 1s. per ton. Rolling stock is increased by 60 per cent, and the charge for livestock conveyed at truck rates by 60 per cent, with a flat rate addition of 1s. per truck. Carriages of every description are subject to an increase of 60 per cent, with a flat rate addition of 2s. 6d. per vehicle. Merchandise and parcels sent by passenger train, including perishable merchandise, will be increased by 50 per cent.

There are certain modifications and exceptions to the increases in the different classifications. Fruit, vegetables (other than hothouse produce), eggs, butter, cream, soft cheese and poultry conveyed by passenger train or other similar service will only be subject to an increase of 25 per cent. Potatoes and vegetables in Class C and roots in Classes B and C, and fruit, hay and straw conveyed by merchandise train in loads of two tons and upwards will be charged an increased rate of 25 per cent, with the flat rate addition applicable to their class. For merchandise and livestock conveyed to and from Great Britain and Ireland the existing surcharges will be reduced. Milk, manure in bulk, packed manure, basic slag and lime for agricultural purposes are not to be subject to any increase in the existing rates.

The Times further explains that this raising of the rates is necessary, for one thing, to fulfil the promise of the government, when the railways were taken over from their proprietors for war purposes, that the undertakings should be handed back "unimpaired in net revenue-earning capacity." The railway companies themselves refuse all responsibility for the heavy increases in the wages of railway labor and for the various concessions granted to railwaymen in the matter of hours and conditions of employment.

The Railway Companies' Association—the organization representing the directors of railway companies—intimates that the increased rates and charges will remain in force for 18 months after the expiration of the period of government control, in order that the railway companies may apply to Parliament for necessary alteration in their statutory powers.

Equipment and Supplies

Locomotives

THE GREAT NORTHERN is in the market for 45, 2-8-2 type locomotives.

THE NATIONAL RAILWAYS OF CANADA are inquiring for 25, 4-6-2 type locomotives.

THE DELAWARE, LACKAWANNA & WESTERN is in the market for 6 Pacific type locomotives.

THE VIRGINIA & CAROLINA SOUTHERN has ordered 1 locomotive from the Baldwin Locomotive Works.

THE NORFOLK SOUTHERN has ordered 3, 0-6-0 switching locomotives from the Baldwin Locomotive Works.

THE FLORIDA EAST COAST is in the market for 2, 0-6-0 switching locomotives and 6 Pacific type locomotives.

THE CANTON-HANKOW has ordered 8, 2-8-0 type and 4, 4-6-0 type locomotives from the Baldwin Locomotive Works.

THE JAMAICAN GOVERNMENT RAILWAY has ordered 7, 4-8-0 type locomotives from the Canadian Locomotive Company and 1, 4-8-0 type locomotive from the Baldwin Locomotive Works.

THE PENNSYLVANIA EQUIPMENT COMPANY, 1420 Chestnut street, Philadelphia, Pa., is in the market for a saddle tank switching engine, with cylinders 19 by 24 in., drivers 46 in. or 48 in., and a tractive power of about 30,000 lbs.

Locomotives Delivered in December

The Railroad Administration has compiled the following statement of locomotives shipped for the month ended December 31, 1919:

		On order prior to federal control		USRA administration orders		Constructed in railroad shops			
Name of road	Region	Type	No.	Type	No.	Type	No.	Total	Builders
A. & B.	Southern	Mikado	1	.....	..	.....	..	1	Baldwin
B. & O.	Allegheny	.....	..	USRA Mall.	18	.....	..	18	Baldwin
L. V.	Eastern	Santa Fe.	10	.....	..	.....	..	10	Baldwin
Mo. Pac.	Southwestern	.....	..	USRA Mount.	5	.....	..	5	American
N. & W.	Pocahontas	Mallet	2	.....	..	.....	..	2	Baldwin
P. M.	Eastern	.....	..	USRA 8W.Sw.	5	.....	..	5	Lima
P. & R.	Allegheny	.....	..	USRA Colso.	11	.....	..	11	Baldwin
P. R. R.	Allegheny	.....	..	.....	..	Pacific	3	3	P. R. R
St. L-S. F.	Southwestern	.....	..	USRA 6W.Sw.	7	.....	..	7	American
Sou. Pac.	Cent. W.	.....	..	.....	..	Switch	3	3	Sou. Pac.
T. & P.	Southwestern	Pacific	7	.....	..	.....	..	7	American
T. & P.	Southwestern	Santa Fe.	12	.....	..	.....	..	12	American
T. of St. L.	Southwestern	6W. Sw.	3	.....	..	.....	..	3	American
V. S. & P.	Southwestern	Pacific	2	.....	..	.....	..	2	Baldwin
Total			37		46		6	89	

Freight Cars

THE GREAT NORTHERN is inquiring for 1,000 ore cars of 75 tons capacity.

THE GLOBE SHIPBUILDING COMPANY, Superior, Wis., is inquiring for 2 flat cars.

THE ALASKAN ENGINEERING COMMISSION, Seattle, Wash., is inquiring for 4 box, 4 gondola and 6 flat cars.

THE SOUTH AFRICAN RAILWAYS have ordered 60 bogie cars and 10 cattle cars, from the American Car & Foundry Company.

THE TEXAS COMPANY, New York, has ordered 400, 8,050-gal. capacity tank cars with 40-ton trucks from the Pennsylvania Tank Car Company.

THE CONLY CAR COMPANY, Pittsburgh, Pa., has ordered 50, 8,050-gal. capacity tank cars with 40-ton trucks from the Pennsylvania Tank Car Company.

THE RAJAH OIL & REFINING COMPANY, Youngstown, Ohio, has ordered 2, 8,050-gal. capacity tank cars with 50-ton trucks from the Pennsylvania Tank Car Company.

THE PENNSYLVANIA EQUIPMENT COMPANY, 1420 Chestnut street, Philadelphia, Pa., is in the market for a few tank cars, with shell at least 5/16 in. thick, for transporting creosote oil.

THE MARCUS RUTH JEROME COMPANY, Neville Island, Pittsburgh, Pa., has ordered 3, 8,050-gal. capacity tank cars with 40-ton trucks from the Pennsylvania Tank Car Company.

Passenger Cars

THE SOROCABANA RAILWAY (Brazil) is inquiring for 5 first-class and 10 second-class passenger cars.

THE CANADIAN PACIFIC has ordered 18 steel sleeping car frames and trucks from the National Steel Car Corporation.

THE PENNSYLVANIA EQUIPMENT COMPANY, Philadelphia, Pa., is in the market for 1 combination coach with baggage compartment and compartments for colored and white passengers.

Iron and Steel

SOPHUS BERENDSEN, 15 Broad street, New York, is in the market for 10,000 to 12,000 tons of fabricated bridge steel.

THE CHICAGO, BURLINGTON & QUINCY has ordered 35,000 tons of rails from the Illinois Steel Company, South Chicago, Ind., and 20,000 tons from the Colorado Fuel & Iron Company, Denver, Col.

THE UNITED FRUIT COMPANY has ordered 455 tons of 40-lb. rails and 70 tons of 16-lb. rails, with the necessary fastenings, from the United States Steel Products Company, and has also divided an order for 32 switches and frogs complete to go with the 40-lb. rail, and 24 switches and frogs to go with the 16-lb. rail, all 30-in. gage, between the United States Steel Products Company and the Weir Frog Company. An order for the spikes has been given to W. Ames & Co., Jersey City, N. J. The above is to be used on the Jamaican division of the United Fruit Company's lines.

Track Specialties

THE PENNSYLVANIA RAILROAD (Lines East) has awarded a contract for Bonzano Thomson rail joints to the Q. & C. Company, New York.

Signaling

THE NEW YORK CENTRAL has ordered from the General Railway Signal Company an electric interlocking machine, model 2, unit lever type, 36 levers, for B. R. Tower, Nottingham, Ohio; installation to be made by the railroad company's forces.

THE ATCHISON, TOPEKA & SANTA FE has placed an order with the Union Switch & Signal Company, Swissvale, Pa., for a Saxby & Farmer interlocking machine having a 48-lever frame, with 38 working levers, to be installed by railroad forces at Emporia Junction, Kan.

THE SOUTHERN (Western Lines) has placed an order with the Union Switch & Signal Company, Swissvale, Pa., for a type "F" electric interlocking to be installed at New River, Tenn. Several Switch movements of this plant will be located 3,000 ft. from the tower.

THE PENNSYLVANIA LINES (West of Pittsburgh) has ordered an electric interlocking machine, model 2, from the Central Railway Signal Company, for Pennsylvania avenue, Pittsburgh, Pa.; 51 working levers and 13 spare spaces; installation to be made by the railroad company's forces.

THE SOUTHERN RAILWAY (C. N. O. & T. P.) has ordered from the General Railway Signal Company an electric interlocking machine for the drawbridge at Tennessee river, near Chattanooga; 16-lever machine with 11 spare spaces; installation to be made by the railroad company's forces.

Supply Trade News

Arthur Haller, of the New York office of the **American Locomotive Company,** has been promoted into the company's sales department, with headquarters at Chicago.

Willis E. Martin, treasurer of the **H. K. Porter Company,** Pittsburgh, Pa., died on January 12, after a prolonged illness. Mr. Martin had been connected with this company for 44 years.

C. E. Laverenz, inspector in the Ordnance Department of the United States Navy, has been appointed special railroad representative of the **Chicago Pneumatic Tool Company,** with headquarters at Chicago.

The Barco Manufacturing Company, Chicago, has increased its capital stock to $500,000 and contemplates building a new factory to accommodate the manufacture of several new devices which it expects to put on the market in the near future.

The machine works engineering department and 75 of the engineers of the **Westinghouse Electric & Manufacturing Company,** East Pittsburgh, Pa., were transferred on January 14 to Lester, Pa., near the South Philadelphia works of the company.

Harry Miller, assistant chief engineer, at the Harvey (Ill.) plant of the **Buda Company** has been promoted to chief engineer, succeeding R. B. Fisher, whose promotion to general sales manager was announced in the *Railway Age* of January 23 (page 335).

Arthur Elliot Allen has been appointed district manager at New York for the **Westinghouse Electric & Manufacturing Company,** to succeed **Edward D. Kilburn,** who has been elected vice-president and general manager of the Westinghouse Electric International Company. Mr. Allen is a native of Toronto, Canada, and received his education in England and also in this country. In June, 1902, he entered the employ of the Westinghouse Electric & Manufacturing Company at its Newark works, subsequently being placed in charge of the test department, where he remained until 1910. In that year Mr. Allen was loaned by the management of the company to the International Electric Protection Company, for which company he acted as chief engineer. After completing that temporary work, he returned to the employ of the Westinghouse company, being assigned to the supply division of the New York sales office. On December 1, 1915, Mr. Allen was appointed manager of the supply division of the New York office, which position he retained until he joined the Canadian Overseas Forces as a private in October, 1917. Later he was sent to the Canadian Officers' Training Camp, and went overseas as a technical officer. While overseas, Lieutenant Allen was stationed in England at the Salisbury Plains school for navigation and bomb-dropping. This school was by far the largest one operated by the Royal Air Forces and Lieutenant Allen was charged with the maintenance of all its engines and planes. In September, 1918, he was attached to the "Bombing Berlin"

A. E. Allen

squadron as a technical officer. This was the squadron which was detailed to drop bombs on Berlin in retaliation for the bombing of English towns. The signing of the armistice, however, ended the war before this squadron arrived at the front. After being honorably discharged from the army Mr. Allen returned to the New York office of the Westinghouse company as executive assistant to the manager, from which position he was promoted to manager, as above stated.

The Duff Jack Sales Company, Ltd., with headquarters in Oxford Circus House, 245 Oxford street, London, W. L., England, has been formed to represent the **Duff Manufacturing Company,** Pittsburgh, Pa., in the British Isles, and has been given the exclusive agency in this territory for Duff and Barrett jacks.

J. B. Johnston, formerly manager of the **Ordnance Department** of the Crucible Steel Company of America, at Harrison, N. J., has been appointed general manager of the **Standard Scale & Supply Company,** Pittsburgh, Pa. This firm specializes in the building of railroad track scales and heavy duty industrial scales.

Albert Schmid, consulting engineer of the **Westinghouse Electric & Manufacturing Company** and in general supervision of the interests abroad of the **Westinghouse Lamp Company,** died in New York on December 31 at the age of 62 years. Mr. Schmid was not only closely identified with the early development of electrical machinery in the United States, but was also prominent in the electrical world of France, Switzerland, Italy and Great Britain. Mr. Schmid was born in Zurich, Switzerland, in 1857 and received his education in that city. He was in the employ of the French Westinghouse Air Brake Company when Mr. Westinghouse met him in the early 80's, and, being impressed with his ability, invited him to come to America. Soon after his arrival Mr. Schmid turned his attention to designing work for the Westinghouse Air Brake Company, then located in Allegheny, Pa., where his keen mechanical perception and insight brought him rapid advancement. When Mr. Westinghouse became interested in the Union Switch & Signal Company and started there his original electrical work, he engaged Mr. Schmid as his chief designer and engineer in that field. Shortly after, in 1886, he was transferred to the newly created Westinghouse Electric Company, becoming its first chief engineer, and in 1896 its general superintendent. In 1897 he went to Europe for the purpose of studying the continental development in the electrical art and the manufacturing possibilities there, and, as a result of this trip, the formation of the French Westinghouse Company was soon under way. He was made director general of that organization. He also held the positions of director of the Westinghouse Electric Company, Ltd., of England, president of the Compagne des Lampes a Filament Metallique, of France, and at the time of his death, in addition to his position as consulting engineer for the American Westinghouse Company, he represented the Westinghouse Lamp Company and had general supervision of its interests abroad.

A. Schmid

J. G. Miles has been appointed supply division manager at Seattle, Wash., of the **Westinghouse Electric & Manufacturing Company,** succeeding **C. V. Aspinwall,** now the company's representative at Spokane, Wash. **Mr. Miles** has served for a long time in the supply department of the Westinghouse company, having been for several years head of the insulation section at East Pittsburgh, Pa.

A. R. Horn, who served for over ten years as inspector of devices of the **Q & C Company,** New York, in connection with its Chicago Office, died at Minneapolis, Minn., on December 28, 1919, at the age of 70. Before his connection with the Q & C Company Mr. Horn was division superintendent of the Wisconsin Central Railroad.

W. C. Dyer, superintendent at the Harvey (Ill.), plant of the Buda Company, has been elected president of the **Buda Engine Service Company,** a subsidiary of the Buda Company, with headquarters at New York City. **J. R. Mayeski,** chief clerk in the Chicago office of the Buda Company, has been appointed to assume a part of Mr. Dyer's former duties as superintendent.

A. W. Ransome, manager of the New England territory of the **Blaw-Knox Company,** Pittsburgh, Pa., with offices at Boston, Mass., has been transferred to San Francisco, Cal., as manager of the Pacific Coast territory, with offices in the Monadnock building, San Francisco. Mr. Ransome is succeeded at Boston by **O. A. Olstad,** formerly connected with the New York office of the Blaw-Knox Company.

The Chicago Pneumatic Tool Company, Chicago, has appointed **Edward A. Woodworth** and **C. E. Laverenz** special railroad representatives on the staff of manager of western railroad sales, with headquarters in the Fisher building, Chicago. Mr. Woodworth has been for two years secretary of the Committee on Standards, United States Railroad Administration, Washington, D. C. Prior to his engagement in the government service he was associated with the Oxweld Railroad Service Company and O'Malley Barre Valve Company. He was formerly chief clerk to the general mechanical superintendent of the Chicago, Rock Island & Pacific Railroad, and previous to that was in the shops of that road as a mechanic. Mr. Laverenz for several years was an inspector in the ordnance department of the United States Navy and previously held positions as boilermaker and foreman on the Chicago & North Western and the Illinois Central.

The Westinghouse Electric & Manufacturing Company, Pittsburgh, Pa., has announced the following promotions among its officers at East Pittsburgh; **Alexander Taylor,** for many years manager of works, has been made assistant to vice-president in general charge in all plants of production, stocks and stores. **R. L. Wilson,** general superintendent, has been promoted to works manager of the East Pittsburgh Works. **E. R. Norris** has been appointed director of works equipment in charge of machinery, tools and methods in the various plants. **C. B. Auel** has been appointed manager of the employees-service department. Other appointments include: **G. M. Eaton,** chief mechanical engineer of the company; **C. W. Johnson** and **H. W. Cope,** assistant directors of engineering; **C. H. Champlain** and **E. S. McClelland,** assistant works managers; **John E. Bonham,** assistant to works manager; **E. S. Brandt,** supervisor of equipment and methods; and the following were appointed as managers of the engineering departments indicated: **A. M. Dudley,** automobile equipment; **R. P. Jackson,** material and process; **F. E. Wynne,** railway equipment department; and **G. H. Garcelon,** small motor.

Trade Publications

OPPORTUNITIES FOR TECHNICAL GRADUATES.—Opportunities for technical graduates are very thoroughly explained in an illustrated pamphlet bearing that title, recently issued by the Westinghouse Electric & Manufacturing Company. This booklet describes, in considerable detail, the plan which has been developed by this company for the training of the graduates of technical schools at all of its various works. In the booklet is included a list of prominent Westinghouse men who originally entered the company as graduate students, as well as a complete list of schools from which over 5,000 students have entered the employ of the company.

Financial and Construction

Railway Construction

CANADIAN LIGHT RAILWAY CONSTRUCTION COMPANY, LTD.—This company plans to build a metre gage railway from Elk Lake on the Temiskaming and Northern Ontario to Gowganda, Ont. Construction will commence in the spring. It is also the intention of this company to run extensions from Gowganda into the Fort Matachewan and West Shining Tree districts in Ontario. The company is working on plans to build a loop line leaving the Temiskaming and Northern Ontario at Swastika, passing through the Kirkland Lake, Larder Lake, Skead Township and Boston Creek areas and connecting again with the Temiskaming and Northern Ontario at its Boston Creek station. Both lines will be light narrow gage and temporary, built with the idea of giving undeveloped districts immediate transportation facilities.

CANADIAN NATIONAL RAILWAYS.—Work was completed during 1919 on an extension of 4.92 miles of first and second track from Halifax Ocean Terminal station, Nova Scotia, to Fairview Junction. Also on 3 miles of second track from Athol, N. S., to Little Forks, and on one mile in New Brunswick from mile 1.5 to mile 2.5. Work is now under way on double track and diversion from Moncton, N. B., to mile 3.5 New Castle subdivision, to cost $208,000, 80 per cent completed, and to be finished in June, 1920; also on double track from Springhill Junction, N. S., to Maccan, cost $430,000, 55 per cent completed, to be finished by July next, and on double track and diversion from St. Rosalie Junction, Que., to Bagot, cost $488,000, 60 per cent completed, to be finished by June, 1920. Other work under way includes continuation of construction at Halifax Ocean Terminal, N. S., to cost $1,600,000, which is about 75 per cent completed; yard extension at Dartmouth to cost $190,000, 60 per cent completed; double tracking mile 0. to mile 7.69 between Truro and Belmont, cost $605,000, 58 per cent completed. Improvements at the St. Malo shops cost $500,000, 98 per cent completed; engine facilities, coaling plant, etc., at Sydney, cost $100,000, 61 per cent completed, and installing standard gage and third rail on the Prince Edward Island Railway, cost $144,660, 95 per cent completed.

DELAWARE, LACKAWANNA & WESTERN.—The Board of Public Utilities Commissioners of New Jersey has made a report indicating the manner in which the work of elevating the tracks of the Delaware, Lackawanna & Western, through East Orange, N. J., should be done but not ordering the work to be carried out. This action of the commissioners will be followed in the near future by an order requiring the work to be done. The tentative plans for these improvements call for the reconstruction of about 1.75 miles on the main line for three tracks instead of the present two tracks, and about three-quarters of a mile on the Montclair branch, involving the placing of about 90,000 cu. yd. of embankment and 50,000 cu. yd. of concrete. Sixteen grade crossings are to be eliminated and new passenger stations are to be built at East Orange, and at Brick Church. The passenger stations at Grove street on the main line, and at Ampere on the Montclair branch are to be remodeled.

GAINESVILLE-SHERMAN TRACTION COMPANY.—Under this name a company, with a capital stock of $1,500,000, will soon be incorporated in Texas to build a railroad from Gainesville, Tex., east to Sherman, about 40 miles, passing through Callisburg, Whitesboro, Sadler and Southmayd. It is proposed to open construction bids about February 1. The estimated cost of the line is about $1,500,000, including bridges, trestles and culverts, $161,970; rolling stock, $180,000; terminal buildings, $65,000, and freight and passenger stations, $15,640. It is proposed to use gasoline locomotives. Connection is to be made at Sherman with the Texas Electric to Dallas, Tex., Sherman and Denison. The incorporators of the new line are: President, George M. Easley; vice-president and general manager, Burt C. Blanton; secretary, Shearon A. Bryan; treasurer, J. Dabney Day; general counsel, George A. Robertson, and supervising engineer, Henry E. Elrod. The office of the company is in the Insurance building, Dallas.

GULF & DESDEMONA.—A charter has been given to this company, with a capital stock of $500,000, to construct a steam railroad from Comanche, Tex., to Eastland via De Leon and Desdemona, about 50 miles. The line from De Leon to Desdemona is now being graded and it is expected to begin the laying of steel some time during the present month. The construction contracts call for the completion of the road to Desdemona by September 1, 1920, and into Eastland by July 1, 1921. The promoters expect to have the line in operation before September 1, 1920. The road will have trackage and terminal rights over the Ringling lines in Eastland. L. B. Williams, of Fort Worth, is president; A. E. Hampton, vice-president; H. Burks, secretary-treasurer, and Jerome P. Kearby, of Comanche, general counsel. The temporary general offices of the company are at De Leon.

OKLAHOMA SOUTHWESTERN.—This company is in the process of incorporation and will build a new line between Okmulgee, Okla., and Bristow, running into an undeveloped oil country. The new company is to be capitalized at $2,000,000, but it is expected that the construction and equipment of the road will cost at least twice this amount. The main line will be approximately 35 miles long and will connect at Okmulgee with the St. Louis-San Francisco and the Okmulgee Northern. Connections will be made at Briston with the Frisco Lines. The officers of the new road, all of whom are officers of the Mineral Belt, are as follows: T. B. Slick, president; J. A. Frates, Sr., first vice-president; J. A. Frates, Jr., vice-president and general manager; W. Matthews, vice-president and chief engineer; J. H. Grant, general attorney; G. E. Matt, auditor and treasurer. The temporary offices of the company are at Miami, Okla.

PACIFIC GREAT EASTERN.—This road is considering the relocation of 15 miles of its line near the Cottonwood river, B. C. The track has been subject to continual subsidence, and requiring the extensive use of piles and trestles to maintain the line and surface. The new location would shorten the route by five miles; would lower the crossing between Ten Mile lake and the Cottonwood river by 37 ft., and would eliminate considerable curvature. The Cottonwood river crossing on the new location would require a bridge 400 ft. long, as compared with the present one comprising 1,800 ft. of steel work and 1,200 ft. of trestle. The estimated cost of the relocation, a survey of which has been completed, is $500,000.

THE CHICAGO, BURLINGTON & QUINCY is reconstructing its elevators at Murray Yard, Kansas City, Mo., which were recently destroyed by fire. The work will cost approximately $500,000.

Railway Financial News

AKRON, CANTON & YOUNGSTOWN.—See Northern Ohio.

CHICAGO & EASTERN ILLINOIS.—A statement has been issued by a committee, of which George C. Van Tuyl, Jr., is chairman, to the holders of five per cent first lien coal bonds of the Chicago & Eastern Illinois Railroad Company, regarding the organization of the Indiana & Illinois Coal Corporation under the laws of the state of Delaware. The new corporation will have an authorized capital stock of $4,057,000 of 7 per cent cumulative preferred, and 40,000 shares of common stock without par value. The property, held under a mortgage securing the coal bonds of the Chicago & Eastern Illinois Railroad Company, has been transferred to the new company. Announcement is made by the committee that it is prepared to divide among the holders of the certificates of deposit for the coal bonds all the preferred stock of the new corporation and 30,439 shares of its common stock, and the remaining 9,561 of the latter are to remain in the treasury of the new corporation under the terms of the distribution plan.

NEW YORK CENTRAL.—Bertram Cutler and Albert H. Harris have been elected directors to succeed Carl R. Gray, resigned, and Horace E. Andrews, deceased.

THE GRAND TRUNK SYSTEM, after using the Dempsey coding system in the transmission of telegrams for over a year, has ordered 600 additional copies of the code book, making a total of 2,100 copies now in use on its lines.

Railway Officers

Railroad Administration

Operating

W. C. Hurst, general superintendent of the Chicago, Peoria & St. Louis, has been appointed general manager, effective February 1.

R. H. Allison, division superintendent of the Atchison, Topeka & Santa Fe at Chillicothe, Ill., has been appointed assistant general manager of the Eastern District of the same road, with headquarters at Topeka, Kan., succeeding **E. Raymond,** deceased.

C. D. Hogan, vice-president of the Gulf, Mobile & Northern Railroad Company, has been appointed general manager of that road and of the Meridan & Memphis for the Railroad Administration, with headquarters at Mobile, Ala., succeeding **W. F. Owen,** resigned.

Lieut. Col. H. C. Nutt, general manager of the Los Angeles & Salt Lake at Los Angeles, Cal., has resigned to become president of the Central Equipment and Coal Commission which represents Italy, England and France and has charge of all bituminous coal mining and distributing operations in Silesia.

C. W. Fee has been discharged from army service and has resumed service with the Northern Pacific as trainmaster at Tacoma, Wash., the position he held prior to the war. **H. Cavanangh,** who assumed Mr. Fee's duties during the latter's absence, has resumed his former position as assistant chief despatcher at Tacoma.

L. A. David, superintendent on the Missouri Pacific, with headquarters at Falls City, Neb., has been transferred to Little Rock, Ark., succeeding **W. E. Brooks,** who has been transferred. **W. E. Kirk,** superintendent at Van Buren, Ark., has been transferred to Falls City, succeeding Mr. David, and **D. H. Robinson,** assistant superintendent at Sedalia, Mo., has been promoted to superintendent to succeed Mr. Kirk at Van Buren.

Financial, Legal and Accounting

F. H. Palmer, auditor of capital expenditures of the New York, New Haven & Hartford, with headquarters at New Haven, Conn., has been appointed auditor of miscellaneous accounts with the same headquarters.

E. M. Devereux, federal treasurer of the Baltimore & Ohio and other roads under the control of A. W. Galloway, federal manager, has had his jurisdiction extended over the Staten Island Rapid Transit, the Staten Island and the Baltimore & New York.

Engineering and Rolling Stock

E. G. Lane, chief engineer of the Baltimore & Ohio, Eastern and Western Lines, with headquarters at Cincinnati, O., has been appointed engineer maintenance of way of the same road, Western Lines, and of the Dayton & Union and the Dayton Union, with the same headquarters.

Traffic

J. G. Krener has been appointed assistant general passenger agent of the Western Maryland and the Cumberland & Pennsylvania, with temporary headquarters at Baltimore, Md.

W. McN. Knapp has been appointed assistant general freight agent of the Central of Georgia in charge of freight service agencies, effective December 30. He succeeds **J. G. Carlisle,** resigned to engage in other business.

T. H. Lee has been appointed assistant general freight agent and **C. B. Oakley,** general agent of the Western Maryland and the Cumberland & Pennsylvania, both with headquarters temporarily at Hillen Station, Baltimore, Md.

Corporate

Executive, Financial, Legal and Accounting

N. D. Maher, regional director of the Pocohontas region, with headquarters at Roanoke, Va., has been elected president of the Norfolk & Western, effective March 1.

Traffic

C. P. Hoch has been appointed general agent of the Kansas City Southern at New York. **Henry Brown** has been appointed general agent at Chicago; **B. A. Rogers,** general agent at St. Louis, Mo.; **J. M. Carriere,** general agent at New Orleans, La.; **J. B. Blanton,** at Tulsa, Okla.; **G. H. Dougherty,** at Dallas, Tex.; and **C. M. Wilkinson,** at San Antonio, Tex.

James D. Watson, assistant to the director of the Division of Traffic of the United States Railroad Administration, has been appointed general traffic manager of the St. Louis Southwestern Railway Company, with headquarters at St. Louis, Mo. Mr. Watson was born on June 30, 1870, at Port Huron, Mich., and began railroad work in August, 1880, with the St. Louis, Iron Mountain & Southern as a messenger. He later served in various positions in the machinery, car, store, operating and traffic departments and, in October, 1895, was appointed contracting agent and traveling freight agent of the St. Louis Southwestern. In 1901 he was promoted to division freight agent, with headquarters at Little Rock, Ark. In 1904 he was appointed chief clerk in the general freight office at St. Louis, Mo., and in 1906 was promoted to assistant general freight agent with the same headquarters. He was appointed vice-chairman of the executive committee of the Southwestern Tariff committee, with office at St. Louis in 1913 and the following year became assistant freight traffic manager of the St. Louis Southwestern, with headquarters at St. Louis, Mo. In 1915 the title of his office was changed to assistant general freight agent, which position he held until May, 1917, when he was promoted as assistant to the first vice-president of the St. Louis Southwestern. The same year he was also appointed assistant to the president of the St. Louis Southwestern of Texas. In April, 1918, he was appointed assistant to the chairman of the inter-regional committee in charge of railroad operation for the Railroad Administration at St. Louis and East St. Louis, Ill., relinquishing his duties with the Cotton Belt in order to assume active charge of the new work. In September, 1918, he was appointed assistant general freight agent of the Louisiana & Arkansas, with headquarters at St. Louis. In the latter part of 1918 he was appointed assistant to the director of the Division of Traffic of the Railroad Administration, which position he held until his recent appointment.

Obituary

John K. V. Agnew, formerly general superintendent of the Pere Marquette, died on January 17 at Grand Rapids, Mich.

H. H. Seaverns, traffic manager of the Chicago & Illinois Midland, with headquarters at Chicago, died at his home in Chicago, January 20.

Howard T. Wilcoxon, assistant general counsel for the Pullman Company, died on January 22 at his home in Evanston, Ill., at the age of 50 years.

Max Lindemann, civil engineer, who, prior to his retirement in 1905, was connected with the Chicago, Milwaukee & St. Paul in the maintenance department, died in his home at Epworth, Iowa, on January 20, at the age of 77 years. Mr. Lindemann did pioneer work for the Chicago, Milwaukee & St. Paul in the Dakotas and Minnesota in 1870 and was employed in 1881 by the Canadian Pacific in the construction of its lines from Winnipeg west.